StruxureWare™

Power Monitoring Expert 8.1

Web Applications – Help Topics

Schneider Electric

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As standards, specifications and designs change from time to time, please ask for confirmation of the information given in this publication.

Safety Information

Important Information

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

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

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

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

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

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

> ## *NOTICE*
> **NOTICE** is used to address practices not related to physical injury.

Please Note

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

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

Safety Precautions

During installation or use of this software, pay attention to all safety messages that occur in the software and that are included in the documentation. The following safety messages apply to this software in its entirety.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION

- Do not use the software for critical control or protection applications where human or equipment safety relies on the operation of the control action.
- Do not use the software to control time-critical functions because communication delays can occur between the time a control is initiated and when that action is applied.
- Do not use the software to control remote equipment without securing it with an authorized access level, and without including a status object to provide feedback about the status of the control operation.

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

⚠ WARNING

INACCURATE DATA RESULTS

- Do not incorrectly configure the software, as this can lead to inaccurate reports and/or data results.
- Do not base your maintenance or service actions solely on messages and information displayed by the software.
- Do not rely solely on software messages and reports to determine if the system is functioning correctly or meeting all applicable standards and requirements.
- Consider the implications of unanticipated transmission delays or failures of communications links.

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

Contents

Web Applications

When you open Web Applications, you are prompted to log in with your user name and password.

The access level assigned to your user name determines which applications are available to you. The following table indicates which of these are available for each access level.

Access Level	Application
Supervisor	All applications.
Operator	All applications. Excluded from modifying application settings.
Controller	All applications. Excluded from modifying application settings.
User	Excluded from Alarms. Alarm Annunciator not displayed.
Observer	Excluded from Alarms. Alarm Annunciator not displayed.

The Web Applications user interface

The Web Applications component provides access to the following integrated applications through links in the banner: Dashboards, Diagrams, Trends, Tables, Alarms, and Reports.

The top right of the banner contains:

- Your user name: The user name you used to log in.

- **Logout** link: Logs you out of Web Applications and returns you to the log in page.

- **Settings** link: Opens the Settings dialog where you set color, localization, and logo options for the user interface. See "Settings" on page 13 for further information.

- **Help** link: Opens the browser-based online help for the Web Applications component and the integrated applications.

Alarm Annunciator

The Alarm Annunciator displays in the banner. It does not appear in the banner for users logged in with user-level or observer-level access.
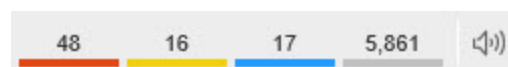
Place the mouse pointer on any of the numbers on the annunciator to open a tooltip indicating:

- A total of all **Active Alarms** with **Active Unacknowledged Alarms** and **Active Acknowledged Alarms** subtotals in their respective high, medium, and low priorities.

  The numerical values are underscored with red, yellow, and blue lines to identify high, medium, and low priority alarms, respectively.

- A total of all **Inactive Unacknowledged Alarms** with subtotals by priority.

  The numerical value is underscored with a gray line.

The alarm sound indicator is enabled by default. A beeping sound indicates that there are active unacknowledged alarms. Click the indicator to toggle the sound off for your current session. The sound indicator returns to the default enabled state the next time you log on. See Setting options for alarms and events for information about changing Alarm Annunciator options.

Clicking the Alarm Annunciator opens the **Recent Alarms (24 hours)** view in the Alarms application. If you want to display all of the **Active Unacknowledged Alarms** shown on the Alarm Annunciator:

1. Change the default time period for the alarms by clicking **Edit Settings** and selecting **All Time** in the list under **Views include Alarms generated within**, then click **OK**.

2. In the **Selection View Settings** area (in the configuration pane on the right):

   a. Select **Active only** and **Unacknowledged only** under **Alarm State**.

   b. Select the alarm priorities under **Alarm Priority**. All priorities are selected by default.

   c. Select **All** under **Dates**.

   d. Select **All** under **Devices**.

   The alarms displayed match the number of **Active Unacknowledged Alarms** shown in the Alarm Annunciator.

Configuration pane

The configuration pane contains collections of data visualizations and configuration options available for the selected application. To view or hide the configuration pane, click **<** or **>** on the bar at the right.

Display pane

The display pane loads the data visualization selected in the configuration pane.

Specifying which application to open first

When you connect to Web Applications through a client computer, the application whose link is on the left of the series of application links opens in the browser. To specify a different application to open first, add one of the following application query parameters into the Web address.

/#Dashboards	/#Tables
/#Diagrams	/#Alarms
/#Trends	/#Reports

For example, `http://srv1.MyCompany.com/Web/#Tables` opens the Tables application in the browser.

Settings

You can use the **Settings** option to:

- Apply a theme to the Web Applications interface by selecting a logo, updating the text on the banner, and applying a theme color to borders and other elements of the user interface.

- Select localization settings consisting of language, and regional settings for date, time, number format, and currency format.

> **NOTE**: For the Reports application, use the Reporting Configuration Manager in Management Console (**Tools > Reporting Configuration > Reporting Configuration Manager**) to select regional formatting settings.

Only users with administrator privileges have access to the Settings option.

1. Click the **Settings** link on the Web Applications banner to open the dialog.

2. Click the **Theme** or **Localization** tabs to open their respective configuration page.

3. To cancel changes and close the Settings dialog at any time, click **Cancel** or click the **X** in the top right corner.

Theme

Use the **Theme** configuration page to select a logo and update the text on the banner, or change the color theme of the user interface.

Changing the logo

1. Click **Select** under **Image** to open the Select Application Image dialog.

2. Select an image for the logo:
   - Select an image currently available in the repository, or
   - Click **Upload Image** to choose an image file available on your system or drag an image file into the application area.
   - Click **Finish** to add it to the image repository.

3. Click **OK** to complete your selection.

   The image file name is shown under **Image** in the dialog. The image is updated on the banner when you save your settings.

You can use gif, jpg, jpeg,or png image formats. The maximum file size is 2MB. Images are automatically resized to fit the logo area on the banner.

Updating the text on the banner

Enter the text that you want to use with your logo in the **Text** field. The text is updated on the banner when you save your settings.

Changing the color theme

1. Select from several preset color themes or create your own using the **User Defined** drop-down control on the right.

When you click a color, it is temporarily applied to the interface to show you the effect of the change.

2. To return to the default color theme, click the color selector under **Default**.

The color theme for the interface is applied when you save your settings.

Resetting the theme to the system defaults

To reset the theme to the system defaults:

1. Click the **Settings** link to open the dialog.

2. Click **Reset Theme**.

3. Click **Save** to return to the default logo, banner text, and color theme.

Localization

Use the **Localization** configuration page to select the language and region. The setting for **Region** determines date, time, and number formats.

1. Select the system **Language** from the drop-down list.

2. Select the **Region** from the drop-down list.

Instructions indicate that the application must be reloaded before your changes take effect.

3. When you complete your localization settings click **Save** to save your changes and close the Settings dialog.

Dashboards

The Dashboards application provides a way to visualize present and past energy usage in meaningful graphic representations called gadgets. These gadgets display energy data taken from your underlying power monitoring system, enabling you to make informed decisions about your operations that may impact present and future energy needs.

The Dashboards user interface

The Dashboards user interface consists of a dashboard display pane and a dashboard configuration pane.

Dashboard display pane

The dashboard display pane shows the dashboard selected in the **Dashboard Library**.The system administrator can set a system default dashbaord that users see when they first log in. See "Duplicating, deleting, or setting default options for a dashboard" on page 18 for information about setting a dashboard as the system default dashboard.

Dashboard configuration pane

The dashboard configuration pane contains a **Dashboard Library** area and a **Dashboard Controls** area. You use these areas to add, modify, or remove dashboards, to add or remove folders from the Dashboard Library, and to add and configure gadgets for a dashboard.

To view or hide the configuration pane, click **<** or **>** on the bar at the right.

Getting started with Dashboards

When you click **Dashboards** on the banner, the application opens with instructions to select a dashboard in the **Dashboard Library** or to create a new dashboard. (This occurs if a default dashboard has not already been configured. If it has, the default dashboard opens.)

Click a dashboard name in the **Dashboard Library** to view the dashboard and its associated gadgets in the display pane.

Click **Add Dashboard** in the **Dashboard Library** to begin the process of creating a new dashboard.

For further information, see the following topics:

- "Adding and configuring a dashboard with gadgets" on page 16.
- "Changing dashboard settings" on page 17.
- "Duplicating, deleting, or setting default options for a dashboard" on page 18.
- "Changing gadget settings" on page 18.
- "Moving or resizing a gadget on a dashboard" on page 19.
- "Adding a folder to the Dashboard Library" on page 19.

Adding and configuring a dashboard with gadgets

Adding a dashboard

To add a new dashboard:

1. Click **Add Dashboard** in the **Dashboard Library**.

   The **Dashboard Controls** area is enabled for configuring the dashboard.

2. Type a name for your new dashboard in the **Name** field.

   A default name initially appears in the field.

   The dashboard display pane also indicates that you need to add a gadget.

Adding a gadget to the dashboard

To select and add a gadget to the dashboard:

1. Click **Add Gadget** to open the Gadget Setup dialog.

   By default, all gadgets are included in the dialog. To filter the gadgets by category, click **Common**, **Comparison**, **Layout**, **Trend over Time**, or **Web**.

   > **NOTE**: Optional gadgets may appear depending on licensing of the product. For example, if you are licensed to use Power Quality Advisor then you will see nine new gadgets in two new categories.

2. Select the gadget that you want to add to the dashboard and click **Next**.

   Gadget settings are specific to each gadget. For example, some gadgets require a data series consisting of sources and measurements, while other gadgets have no such requirement.

   See for a description of the settings.

3. Click **Next** to proceed through the pages of the Gadget Setup dialog.

4. Click **Finish** to close the Gadget Setup dialog and to add the gadget to the dashboard.

5. Repeat the process to add additional gadgets to your dashboard.

Styling the dashboard

To add an image to the dashboard, change its background color, or modify the opacity setting for gadgets on the dashboard:

1. Click **Styling** to open the Dashboard Styling dialog.

2. To use an image for the background of the dashboard:

   a. Click **Background Image** to open the **Image Library**.

   b. Select an image in the **Image Library** and click **OK**.

      You can add your own image to the **Image Library** by clicking **Upload Image** to open the Upload New Files dialog. Then either drag an image file to the area indicated in the dialog, or click **Choose Files** and navigate to an image on your system. Click **Finish** to add the image to the **Image Library** and then click **OK** after you select the image for the background.

3. To use a background color for the dashboard:

   a. Select **Background Color** to enable the color palette.

   b. Click the down arrow to open the palette and select a predefined color or click the color gradient to select a color.

4. To change the opacity setting for the gadgets on the dashboard:

   a. Select one of the opacity percentages in the list under **Gadget Style**.

      An opacity setting of 100% indicates that the gadget is not transparent – the background color or image is not visible through the gadget. A setting of less than 100% results in the gadget being partially transparent – the background color or image is partially visible in the gadget.

5. Click **OK** when you complete your changes to close the dialog and apply the settings to the dashboard and gadgets.

Completing the dashboard setup

1. Use the **Private Dashboard** checkbox to indicate whether or not you are creating a private dashboard that only you can view.

   Note that Administrators continue to have access to everyone's dashboards to view, edit, and delete, irrespective of this Private Dashboard setting.

2. Click **Finish** in **Dashboard Controls** to finalize the creation of the dashboard with its gadgets.

TIP: You can click an item in the gadget legend to toggle the graphical display of data for that item on and off. When you place the pointer on an item in the gadget, a tooltip provides information related to that item. You can also click the maximize gadget icon ⬒ to fill the browser page with the gadget. Click the **Restore** icon ⬓ to return the gadget to its original size on the dashboard.

Changing dashboard settings

To change the dashboard settings:

1. Use the edit mode by:

   a. Right-clicking the dashboard name in the **Dashboard Library** and clicking **Edit** in the menu.

   b. Clicking a dashboard name in the **Dashboard Library** to highlight it, then click **Edit Dashboard** in the **Dashboard Controls** area.

   c. Clicking a dashboard name in the **Dashboard Library** to highlight it, clicking the menu icon to the right of **Edit Dashboard** and then clicking **Edit** in the menu.

   This enables the **Name** field and the **Add Gadget** and **Styling** buttons.

2. Type over the current name highlighted in the **Name** field to update the dashboard name.

3. Click **Add Gadget** to open the Gadget Setup Dialog.

   See "Configuring Gadgets" on page 22 for information about completing gadget settings.

4. Click **Styling** to open the Dashboard Styling dialog.

   See "Styling the dashboard" on page 16 for information about completing the styling settings.

Duplicating, deleting, or setting default options for a dashboard

You can complete other dashboard options by clicking the menu icon to the right of **Edit Dashboard** to access the menu items **Edit**, **Duplicate**, **Delete**, and **Set as default**.

To duplicate a dashboard:

1. Right-click a dashboard name in the **Dashboard Library** and then click **Duplicate** in the menu.

   A duplicate of the dashboard is added to the **Dashboard Library** with an asterisk appended to the name.

2. Right-click the dashboard name and click **Edit** in the menu. (You can also click the dashboard name to highlight it and click **Edit Dashboard**, or click the menu icon to the right of **Edit Dashboard** to access the **Edit** menu item.)

   This enables the **Name** field.

3. Type over the current name highlighted in the **Name** field to update the dashboard name.

To delete a dashboard:

1. Right-click a dashboard name in the **Dashboard Library** and then click **Delete** in the menu.

   The delete confirmation message opens.

2. Click **OK** to delete the dashboard, or click **Cancel** to keep the dashboard.

To set the default options for a dashboard:

1. Right-click the dashboard name and click **Set as default** in the menu. (You can also click the dashboard name to highlight it, then click the menu to the right of **Edit Dashboard** and click **Set as default**.

   The Default Dashboard Settings dialog opens, and the sliders for the **Set as my default dashboard** and **Set as system default dashboard** options are in the off position.

2. Click the slider for one or both of **Set as my default dashboard** and **Set as system default dashboard** to enable those options.

   > **NOTE**: For each user, **Set as my default dashboard** supercedes **Set as system default dashboard**. For example, if a user with supervisor-level access sets a dashboard as the system default dashboard, and another user sets a different dashboard as their default dashboard, that user's default dashboard takes priority over the system default dashboard, but only for them.

Changing gadget settings

To change the settings for a gadget:

1. Click the menu icon in the gadget to open the menu.

   The menu contains **Edit**, **Duplicate**, **Copy to**, and **Delete** items.

2. Click **Edit** in the menu to open the Gadget Setup dialog.

3. Change any of the settings on the tabs in the Gadget Setup dialog.

    See "Configuring Gadgets" on page 22 for information about completing settings for the gadget.

4. Click **Save** to update the gadget settings and to close the Gadget Setup dialog.

In gadgets where a time range has been specified when the gadgets are configured, the time range selection is included on the gadgets in the dashboard. You can quickly change the time range for the gadget by selecting another period of time from the list in the time range field. The time range is applied to the gadget only while you continue to view the dashboard. If you navigate to another dashboard and then come back to this dashboard, the time range on the gadget reverts to the value that you set when you configured the gadget.

Moving or resizing a gadget on a dashboard

You can move or resize a gadget on a dashboard when the dashboard is in edit mode.

Moving a gadget

1. Right-click a dashboard name in the **Dashboard Library**, then click **Edit** in the menu.

2. Position the mouse pointer in the title area of the gadget that you want to move.

    The pointer changes to the **Move** shape (an image with 4 arrows).

3. Drag and drop the gadget to another position on the dashboard.

    Other gadgets on the dashboard are re-positioned if additional space is required.

4. Click **Finish** in **Dashboard Controls** to save your change.

Resizing a gadget

1. Right-click a dashboard name in the **Dashboard Library**, then click **Edit** in the menu.

2. Position the mouse pointer at the lower right corner of the gadget.

    A small triangular shape indicates that you can drag the corner.

3. Drag the corner to increase or reduce the size of the gadget.

    Other gadgets on the dashboard are re-positioned if additional space is required.

4. Click **Finish** in **Dashboard Controls** to save your change.

Adding a folder to the Dashboard Library

To add a folder to the **Dashboard Library**:

1. Click the **Add Folder** icon ⬚⁺ to the right of the **Add Dashboard** button.

    The **Dashboard Controls** area changes to **Folder Controls**, and the **Name** field is enabled.

2. Type a name for the new folder and click **Finish**.

    The new folder is added to the **Dashboard Library**.

Adding a dashboard to the new folder

To add a dashboard to the new folder:

1. Click the folder name to highlight it.

2. Click **Add Dashboard** to enable the **Dashboard Controls** area.

3. Follow the instructions for creating a new dashboard in "Adding and configuring a dashboard with gadgets" on page 16.

   The new dashboard is created and appears under the new folder in the **Dashboard Library**.

Moving an existing dashboard into a folder

Click a dashboard name to highlight it, then drag and drop the dashboard on the destination folder.

A green checkmark indicates that the dashboard drop location is valid.

> **NOTE**: You can also nest folders by dragging and dropping a folder on a destination folder.

Creating, editing, or deleting a slideshow

Use the Slideshow Manager to create, edit, or delete a slideshow.

Creating a slideshow

To create a slideshow:

1. Click the **Manage Slideshow** button in the **Dashboard Library** to open the Slideshow Manager.

2. Click **Add Slideshow** to open the Add New Slideshow dialog.

3. Type a name for the slideshow in the **Name** field.

4. Click any of the dashboards in the **Shared Dashboards** list to add them to the **Dashboard Playlist** area on the right. Alternatively, begin typing in the **Search** field to filter the list for selection.

   The dashboards are listed in the playlist area in the order that you selected them.

5. To modify the list of dashboards in the **Dashboard Playlist**, click the dashboard name to display the edit options, then:

   a. Click the **Delete** icon to remove the dashboard from the playlist.

   b. Click the **Up** or **Down** arrow to move the dashboard to an earlier or later sequence in the playlist, respectively.

6. Select the speed for the transition from dashboard to dashboard in the **Select Transition Time** list.

7. Click **OK** to save your slideshow.

8. Click **Play** to start the slideshow in the slideshow player in the browser.

9. Click **Share** to open the Share Slideshow URL dialog.

   The dialog includes the URL for the slideshow, which you can copy and distribute so that others can access the slideshow.

   > **NOTE**: The client browser must have access to the URL to view the slideshow.

10. Click **Close** to close the Slideshow Manager.

11. To start a saved slideshow, click the **Manage Slideshow** button, select the slideshow name you want to run, and click **Play** to run it in the slideshow player in the browser.

Editing a slideshow

To edit a slideshow:

1. Click the **Manage Slideshow** button in the **Dashboard Library** to open the Slideshow Manager.

2. Click a slideshow name in the list to highlight it, then click **Edit** to open the Edit Slideshow dialog.

3. Change the name of slideshow, modify the dashboards in the play list, change the slide caption for the slideshow, or adjust the slide transition time.

4. Click **OK** to save your changes and to return to the Slideshow Manager, or click **Cancel** to close the Edit Slideshow dialog without saving your changes and to return to the Slideshow Manager.

5. You can click **Play** to start the slideshow in the slideshow player in the browser.

6. Click **Share** to open the Share Slideshow URL dialog.

   The dialog includes the URL for the slideshow, which you can copy and distribute so that others can access the slideshow.

   NOTE: The client browser must have access to the URL to view the slideshow.

7. Click **Close** to close the Slideshow Manager.

Deleting a slideshow

To delete a slideshow:

1. Click the **Manage Slideshow** button in the **Dashboard Library** to open the Slideshow Manager.

2. Click a slideshow name in the list to highlight it, then click **Delete** to open the Delete Slideshow dialog.

3. Click **OK** to permanently delete the slideshow and to return to the Slideshow Manager, or click **Cancel** to retain the slideshow and to return to the Slideshow Manager.

4. Click **Close** to close the Slideshow Manager.

Dashboard Library

The **Dashboard Library** contains all of the dashboards available in the system. Dashboards can be listed individually or they can be organized within folders.

See "Getting started with Dashboards" on page 15 for further information.

Dashboard Controls

The **Dashboard Controls** area consists of an **Edit Dashboard** button and a menu on the right.

The **Name** field, and the **Add Gadget** and **Styling** buttons are enabled when you:

- Create a new dashboard (by clicking **Add Dashboard** in the **Dashboard Library**),

  or,

- Select a dashboard in the **Dashboard Library** and then either right-click the dashboard name and click **Edit** in the menu, or click **Edit Dashboard**.

The **Name** field contains the name of the dashboard selected in the **Dashboard Library**, which you can change, or it is available to add the name for a new dashboard. See "Adding a dashboard" on page 16, or "Changing dashboard settings" on page 17 for information about using the name field.

The **Add Gadget** button opens the Gadget Setup dialog. See "Configuring Gadgets" on page 22 for information about configuring the gadget in the Gadget Setup dialog.

The **Styling** button opens the Dashboard Styling dialog. See "Styling the dashboard" on page 16 for information about selecting a background image or color for the dashboard and for specifying gadget opacity for all gadgets included in the dashboard.

Gadgets

Gadgets are graphical display objects used in the dashboard display pane for charting trends over time, or in comparison with correlated measurements or similar functionality. The gadgets available for a dashboard are listed in the Gadget Setup dialog, which opens when you click **Add Gadget** in the **Dashboard Controls** area.

Configuring Gadgets

The Gadget Setup dialog opens each time you select a gadget to add to a dashboard. The dialog leads you through a series of gadget configuration pages. The pages and the options are specific to each gadget. For example, some gadgets require a data series consisting of sources and measurements, while other gadgets have no such requirement. The exception is the Blank Space gadget, which does not require any configuration. Its purpose is to help you position gadgets on the dashboard by inserting a resizeable transparent blank area.

Note that each page of the Gadget Setup dialog is represented by labeled tabs when you edit the settings for an existing gadget. (See "Changing gadget settings" on page 18 for more information.)

The following table indicates the gadget configuration pages that apply to each gadget, where "Y" indicates that the page applies to that gadget, and "-" indicates that the page is not applicable.

Gadget Name	Gadget Configuration Pages							
	General	Content	Data Series	Equivalency	Image	Viewing Period	Axes	Target Lines
Bar Chart	Y	-	-	-	-	Y	-	-
Energy Equivalency	Y	-	Y	Y	Y	Y	-	-
Period over Period	Y	-	Y	-	-	Y	Y	Y
Pie Chart	Y	-	Y	-	-	Y	-	-
Trend Chart	Y	-	Y	-	-	Y	Y	Y
Web Viewer	Y	Y	-	-	-	-	-	-

General configuration options

Complete the options on this page as follows:

1. Type a title for the gadget.

2. For **Opacity**, you can:

   a. Leave the default option **Use Dashboard Opacity** selected.

      The default opacity setting is controlled in the Dashboard Styling dialog and applies to all gadgets included on the dashboard. This is the recommended setting.

   b. Clear the checkbox for **Use Dashboard Opacity** to enable the settings for the gadget and select one of the available percentages.

   An opacity setting of 100% indicates that the gadget is not transparent – the background color or image is not visible through the gadget. A setting of less than 100% results in the gadget being partially transparent – the background color or image is partially visible in the gadget. The effect of the setting varies depending on the gadget and the background image.

Content configuration options

Complete the options on this page as follows:

1. Use the **Source** field to enter the URL for the website that you want to display.

   The URL should start with **http** or **https**.

2. Use the **Refresh Interval** to indicate how often to refresh the content. The default of `None` indicates that the web site is shown in real time.

3. The **Width** value indicates the display area within the gadget. The default width is 1,000 pixels (px).

4. **Display** provides 2 display options for the gadget:

   a. Select **Scroll the content** to enable scrolling for content that exceeds the width or height of the the display area in the gadget.

   b. Select **Crop/Zoom the content** to display a cropped region of the website. Adjust the **Offset X**, **Width**, **Offset Y**, and **Height** for the crop values.

      The default position is set to the top left corner of the gadget, as indicated by 0 for both the Offset X and Offset Y positions. The default width is 1,000 pixels and the default height is 848 pixels.

      It is recommended that the total of the pixel values for Offset X and Width do not exceed the display width (1000 pixels).

5. Click **Preview** to view how the image will appear in the gadget.

Data Series configuration options

Complete the options on this page as follows:

1. Click **Add** to open the sources and measurements dialog.

2. Click a source name in the **Sources** area to select it.

By default, the items are listed in alphabetical order. You can use the **Search** field to find sources by name.

> **NOTE**: For large systems with many sources, it takes longer to choose a source from the source selector if you change the **Grouping** setting from its default value.

3. For a selected source, expand a measurement category, for example **Energy**, and click the specific measurement you want to include, for example **Real Energy Into the Load (kWh)**.

   The measurements are listed in alphabetical order by measurement category. You can use the **Search Measurements** field to find a specific measurement category or measurement.

   Click **Show Advanced** to open options for filtering the measurements.

   Select **Display only Measurements with historical data** to narrow the measurement choices for the selected device.

4. Select **Display Name** to enter a name of your choice for gadget data purposes. (This is recommended.) By default, the name is a combination of the source and the measurement. For example, for a device `main_7650`, group `BldgA`, and measurement `Real Energy Into the Load` the display name appears as `BldgA.main_7650 Real Energy Into the Load`.

5. Similarly, you can select **Display Units** and enter a unit of your choice.

6. You can modify the following settings for each source measurement:
   - **Series Style**: select the color, line thickness, and how data is represented from the available choices in the dropdown menus.
   - **Axis**: select **Right Axis** or **Left Axis** to chart the data series against the scale for the selected measurement.
   - **Multiplier**: change the multiplier value to convert the data from its original unit to the specified display unit. For example, convert the measurement unit from kWh to MWh by using a multiplier of 0.001.

7. Click **OK** to close the dialog.

Equivalency configuration options

Complete the options on this page as follows:

1. Click **Select Predefined Equivalency** to open the Predefined Equivalencies dialog.

2. Select an item from the list of predefined equivalencies.

   Default values are automatically entered in the fields on the **Equivalency** page.

3. You can change the default values as follows:
   a. Enter the **Multiplier from Wh** value to convert from the watt-hour values into the equivalent measurement.
   b. Select the **Decimal Places** to display for the equivalent value.
   c. Enter the **Unit** for the equivalency. For example, "miles", "kilometers", "lbs", "kg", and so on.

      d.   Select **Display After Value** or **Display Before Value** to specify the position of the **Unit**label.

      e.   Enter the **Energy Equivalency Description** to be displayed in the gadget.

Image configuration options

Complete the options on this page as follows:

1. Select an image to display on the gadget from the available images in the **Image Library**.

2. Optionally, add an image to the **Image Library** by clicking **Upload Image** to open the Upload New Files dialog. Then either drag an image file to the area indicated in the dialog, or click **Choose Files** and navigate to an image on your system. Click **Finish** to add the image to the **Image Library** and then select it.

Viewing Period configuration options

Complete the options on this page as follows:

1. Select the time range for the data that is to be displayed in the gadget.

2. If aggregration options are available, select one of the available options.

The time range and aggregation settings are specific to the gadget that you select.

Axes configuration options

Complete the options on this page as follows:

1. Enter a label for the axes in the **Title** field under **Left Axis** or **Right Axis**. (**Right Axis** is not applicable to the Period Over Period gadget.)

   Axis titles only appear in the gadget if you have configured at least one measurement series for the gadget.

2. For the **Max Value** for each axis, select **Auto** or **Fixed** for the data in the gadget. **Auto** is the default for the maximum value, which is dependent on available data for the selected measurement. If you select **Fixed**, enter the maximum value for the axis.

3. For **Min Value** for each axis, select **Auto** or **Fixed** for the data in the gadget. **Fixed** is the default value of zero (0). You can enter a different minimum value. If you select **Auto**, the minumum value is dependent on available data for the selected measurement and the minumum value is automatically adjusted.

4. For **Chart Type** for each axis, select a type from the dropdown list. The default is **Column** for the left axis, and **Line with Markers** for the right axis.

Target Line configuration options

Complete the options on this page as follows:

1. Click **Add Target Line** to add target line input fields to the page.

   Add additional target line input fields by clicking **Add Target Line** again.

2. Select **Fixed Target** or **Per Day Target** for **Type** to specify how the target line is applied.

    a. **Fixed Number** is a value that applies in all date ranges.

    b. **Per Day Target** is a value that is prorated for the time range that you specify. For example, a per day target of 100 displays the target line at 100 if viewing **By Day**, at 3000 if viewing **By Month**, and at 700 if viewing **By Week**.

3. Enter a label to display in the chart for the target line and select the axis for the target line in the respective fields.

4. Use the **Color Selector** to choose the color of the target line.

5. Click the **Remove Target** Line icon to delete it.

Bar Chart gadget

The Bar Chart gadget displays a summary comparison of several data series in horizontal bars that allow you to compare the data.

For information about configuring the gadget, see "Configuring Gadgets" on page 22.

Energy Equivalency gadget

The Energy Equivalency gadget visualizes aggregated energy consumption from one or more data sources for the specified time range and converted into a single value for the specified measurement units.

For information about configuring the gadget, see "Configuring Gadgets" on page 22.

Period Over Period gadget

The Period over Period gadget displays consumption from two defined viewing periods that allow you to identify patterns in consumption.

For information about configuring the gadget, see "Configuring Gadgets" on page 22.

Pie Chart gadget

The Pie Chart gadget displays a summary comparison of several data series in a single chart that allows you to determine the relationship between several sources of consumption.

For information about configuring the gadget, see "Configuring Gadgets" on page 22.

Trend Analysis gadget

The Trend Analysis gadget displays energy consumption from several data series in a single chart that allows you to compare consumption with outside drivers. You can select how to display the data for both the primary and secondary axes.

For information about configuring the gadget, see "Configuring Gadgets" on page 22.

Web Viewer gadget

The Web Viewer gadget opens a web page inside the gadget frame.

For information about configuring the gadget, see "Configuring Gadgets" on page 22.

Where Is My Measurement?

If you do not see a measurement that you expect in the data series list, it is probably due to one of the following:

- The measurement is not logged. By default, only logged measurements are available in the data series list. To view newly added measurements, clear the checkbox **Display only Measurements with historical data**.

- The measurement is filtered out of the current list. Select from one of the options in the **Show** drop-down list:
  - **All** displays all available measurements for the selected type.
  - **Common** displays a list of the most commonly used measurements.

- The measurement is not available for the type selected in the **Type** drop-down list. Select a different type from the **Type** drop-down list.

- The measurement is a custom measurement for which the metadata is not set up. The metadata defines the measurement type, as well as how a measurement is presented in the **Type** and **Show** drop-down lists. The standard measurements supplied in the software have their metadata already defined. However, metadata for an application-specific custom measurement must also be defined in order for the software to know how to use it.

Diagrams

The Diagrams application allows users to access and display Vista diagrams in the Web Applications (browser) interface. The Diagrams application manages all the necessary data processing and system functions at the server and uses XML to process Vista objects and data for display on the Web pages.

Use the Web Applications component from any computer on your network to view the Vista network diagrams of devices in your power management system. Objects that can be displayed in the browser include real-time numeric data, full or partial gauges, background graphics or diagrams, and basic views of event, data and waveform logs.

Although identical in many ways to Vista, the Diagrams application has certain differences and limitations:

- The diagrams are read-only; control objects such as On/Off and Trigger switches are disabled.

- The time displayed is the local time at the Web server, not at the client computer.

NOTE: Configure the TZ Offset, DST Start, DST End, and DST Offset on the meter to display the correct local time in the Diagrams application.

The Diagrams application and user authentication

User authentication for the Diagrams application is enabled by default. It is also enabled if you upgrade from previous versions of the product.

If you access Diagrams from a browser on a Web Client computer using the URL `http://`*`server_name`*`/ion` (where *`server_name`* is the fully-qualified name of the server or its IP address), you are prompted to log in using your Power Monitoring Expert user name and password.

If you access the Diagrams application on the server which hosts the IIS service, user authentication is not required. This also applies for any http request originating from applications within the server hosting the IIS service. For example, if a Web Viewer gadget in the Dashboards application is configured to access Diagrams, user authentication is not required.

Contact your Schneider Electric representative if you want to disable user authentication for Diagrams.

Preliminary setup

Before you can view Vista diagrams in the Diagrams application, a network diagram ("network.dgm") must exist. The Diagrams application processes each element in the network diagram and converts them for display in the browser.

Note that the Vista component is installed with Power Monitoring Expert on a primary server or Engineering Client. Contact your system administrator if you need a network diagram generated for your use or if you need access to Vista.

To generate a network diagram automatically in Vista:

1. Start Vista.

2. Click **File > Generate network diagram**.

3. Click **File > Save**.

The network diagram generated in Vista is used as the home page when you access the Diagrams application.

Displaying Vista network diagrams online

Use one of the following procedures to view the Web version of the network diagram generated in the Vista component of Power Monitoring Expert.

From a Web client computer

1. Start Internet Explorer.

2. Enter `http://domain_name/Web` in the address field to open the Web Applications login dialog (where `domain_name` is the Internet address for the server hosting the Web Applications component of Power Monitoring Expert).

   For example, for server name **srv1** and company name **MyCompany**, enter the address in the browser as:

   `http://srv1.MyCompany.com/Web`

   If you cannot access the Diagrams application, the product may have been installed on the server with a different virtual root than the default of `Web`. Contact your system administrator for the full address.

3. Enter your user name and password and click **Log In**.

4. Click the **Diagrams** icon on the banner to view the network diagram.

   The network diagram that was created in Vista is displayed. Click an icon to display its contents (for example, click the group icon to display the meters belonging to that group).

From the primary server

1. Double-click the Power Monitoring Expert folder, then double-click Web Applications to open the Web Applications login dialog.

2. Enter your user name and password and click **Log In**.

3. Click the **Diagrams** icon on the banner to view the network diagram.

   The network diagram that was created in Vista is displayed. Click an icon to display its contents (for example, click the group icon to display the meters belonging to that group).

Viewing historical (trend) data

The Diagrams application provides a Web-based graphing utility for viewing historical data. This utility allows you to select the date range and the data that you want to view.

1. Click the meter icon to open its diagram, then click the link or tab that contains the button for the trending information you want to view.

2. Click the Data Log Viewer button 🖼 that corresponds to the data log you want to view.

   The data log table displays today's data by default.

When the data log table opens, 30 rows of data are displayed initially. As you scroll or page down, 30 additional rows of data at a time are added to the table.

3. Click **Change Date Range** to change the timeframe for the data and select one of the available options for the data that you want to view. To specify a custom date range, select **Between these dates** then click the calendar icons 📅 to set start and end dates.

   The new date range is applied when you view the graph. Click **Show Table** to return to the data log table. (When you return to the data log table, your previous table header selections are cleared.)

   If you select a custom date range, a maximum of 6000 rows of data are displayed initially. If the custom date range includes more than 6000 rows of data, you can display the additional records in increments of 30 rows at a time by scrolling down or pressing **End**.

4. Select the check boxes for the items in the table header for the parameters that you want to graph.

5. Click **Show Graph**.

6. Manipulate and control the displayed graph by doing the following:

   a. To zoom in on the graph, left click and drag the mouse pointer around the portion you want to zoom in on.

   b. To restore the graph to its original display size, double-click anywhere in the graph.

7. Click:

   a. **Device Diagram** to return to that page.

   b. **Change Date Range** to select a different date range for the data log table. The new date range is applied when you view the graph.

   c. **Show Table** to return to the data log table. (When you return to the data log table, your previous table header selections are cleared.)

RMS waveform plotting

The Diagrams application plots the calculated root mean square (RMS) values for waveforms.

Viewing meter events

You can view meter events in a table format using the Diagrams application.

NOTE: You cannot acknowledge alarms on the screens generated by the Diagrams application since control functions are not supported. To acknowledge alarms, click the **Alarms** icon in the Web Applications component to open the Alarms viewer.

Viewing the meter events

1. Click the meter icon to open its diagram, then click the link or tab that contains the Meter events button.

2. Click the Meter events button 🖥 to open the a table showing the meter events.

   The meter events table displays today's data by default.

When the meter events table opens, 30 rows of data are displayed initially. As you scroll or page down, 30 additional rows of data at a time are added to the table.

3. Click **Change Date Range** to change the timeframe for the data and select one of the available options for the data that you want to view. To specify a custom date range, select **Between these dates** then click the calendar icons to set a start and end date.

   If you select a custom date range, a maximum of 6000 rows of data are displayed. If the custom date range includes more than 6000 rows of data, you can display the additional records in increments of 30 rows at a time by scrolling down or pressing **End**.

Adding a Global Event Log Viewer

To display the Vista Global Event Log Viewer online, you need to create an Event Log Viewer object in the Vista diagram and link it to the Global Event Log. To add this object to the home page for the Diagrams application:

1. Open network.dgm in Vista and make sure you are at the top level (that is, the title bar displays **User Diagram:network**). Select **Options > Show Toolbox** to switch to Edit mode.

2. Drag an Event Log Viewer object onto the diagram, then right-click the object to display its properties.

3. Click the **Query** tab, then click **Edit Query**.

4. Select **Global**, click **Add**, then click **Next**.

5. Select **Global Event Log @Global**, click **Add**, then click **Next**.

6. Select at least one column other than * in the **Available** section and then click **Add**. If you want to change the order of selected columns, select the column in the **Selected** section then use the up or down arrow buttons to move it accordingly.

7. Set a filter to display only alarms:
   - Use the **Filter** section to select `priority`, and `>=` in the respective lists, and enter `128` in the text field.
   - Click **Insert** to add the filter to the **Where** field.

8. Click **Next**.

9. Select the column you want to assign as the first sorting criteria, then click **Add**. Repeat for the second sorting criteria, and so on. In the **Sort Order** section, double-click a column to change its sort order (for example, to change from "ascending" to "descending").

10. Click **Finish**, then click **OK** to close the **Event Log View Configuration** dialog.

11. Click **File > Save**.

Stale data and error indicators

The Diagrams application uses the Vista stale data settings for its diagrams. Stale data and errors are displayed in the browser as follows:

- A **yellow** border surrounding an object indicates stale data.

- An **orange** border surrounding an object indicates an error in communications, security access, configuration, or other system error.

> **NOTE**: See the "Identifying Stale Data" topic in the Vista section of the online *Power Monitoring Expert Help* for information on stale data. Although you can change the stale data and error flag colors in Vista, the color indicators for these flags do not change in the Diagrams application. Contact Technical Support if you need to change the default Diagrams flag colors.

Advanced Diagrams configuration

Customization and advanced configuration information for the Diagrams application is intended for advanced users only.

See the following topics for additional information:

- [Custom network diagram setup](#) describes how to change registry settings to use a custom network diagram instead of the automatically generated network diagram.

- [Diagrams registry settings](#) describes registry entries and settings used in the Diagrams application.

Custom network diagram setup

If you have a custom network diagram on the primary server that you want to use instead of the automatically generated network diagram, you need to modify the registry settings of the computer where you run the Diagrams application to specify the location of the custom network diagram.

Modifying system registry keys without sufficient knowledge or experience in these procedures can damage the computer's operating system and all existing data.

NOTICE

OPERATING SYSTEM DAMAGE OR DATA CORRUPTION

- Before making any changes to your system registry, back up the registry to a network folder or other remote location.
- Only advanced users with knowledge of operating system registry entries should use the Registry Editor.

Failure to follow these instructions can require operating system re-installation.

---

1. Start Windows Registry Editor and navigate to:

   HKEY_LOCAL_MACHINE\SOFTWARE\Schneider Electric\Power Monitoring Expert\8.1\WebReach

   If the Diagrams application is run on a 64-bit operating system, navigate to:

HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Schneider Electric\Power Monitoring Expert\8.1\WebReach

2. Right-click to add a new string value and name it "NetworkDiagram".

3. Right-click **NetworkDiagram**, select **Modify**, then type the path and name of your custom network diagram in the **Value data** field.

4. Click **OK**.

5. Restart IIS on your computer to apply the changes.

For more information, refer to the **NetworkDiagram** item in the table under [Diagrams registry settings](#). If there is no NetworkDiagram entry in the registry, then the default value "x-pml:/diagrams/ud/network.dgm" is used.

The Network Diagram navigation button located on the date range page and the results page is automatically updated to link to the custom network diagram you specified. However, the Network Diagram button that exists in each meter user diagram uses a hard-coded link to "x-pml:/diagrams/ud/network.dgm". Use Vista to manually update the Network Diagram link in the meter user diagrams. If you do not have access to Vista, contact your system administrator to change the link for the grouping object in the network diagram as described below.

Changing the link for the grouping object in the network diagram

1. Start Vista and select **Options > Show Toolbox** to switch to Edit mode.

2. Right-click the grouping object in the network diagram to open the **Grouping Object Configuration** dialog.

3. Select the **Action** tab and select **Open User Diagram**.

4. Click **Browse** to locate your custom network diagram. Select the diagram filename, then click **Open**.

5. Click **OK** to save your changes.

Diagrams registry settings

The registry keys for Diagrams on a 32-bit system are located in HKEY_LOCAL_MACHINE\SOFTWARE\Schneider Electric\Power Monitoring Expert\8.0\WebReach.

On a 64-bit system, the registry keys are located in HKEY_LOCAL_MACHINE\SOFTWARE\Wow6432Node\Schneider Electric\Power Monitoring Expert\8.0\WebReach.

The following table lists the default Diagrams registry entries and settings.

Default Registry Entries	Default Setting	Description
AutoDiagramTimeout	20000 milliseconds	Timeout period for the autodiagram components to communicate with the device and determine the appropriate template to open.

Default Registry Entries	Default Setting	Description
ExpireTimeLimit	600 seconds	Time limit for a diagram subscription to update its timestamp. If the subscription is not updated within this time period, it is considered expired and is removed.
HTTPRefreshInterval	10 seconds	The webpage refresh rate.
SubscriptionObject	pmlitem:webreachstore:	The name (tag) that the subscription service uses to find Diagrams-related information.
VirtualDirectory	ION	The part of the Web address that points to the Diagrams-generated Vista diagrams for displaying in the browser.
XMLRefreshInterval	3000 milliseconds	The real time data update rate on the webpage.

The following table lists the optional registry entries you can set for custom functionality. Modifying system registry keys without sufficient knowledge or experience in these procedures can damage the computer's operating system and all existing data.

NOTICE
OPERATING SYSTEM DAMAGE OR DATA CORRUPTION
• Before making any changes to your system registry, back up the registry to a network folder or other remote location.
• Only advanced users with knowledge of operating system registry entries should use the Registry Editor.
Failure to follow these instructions can require operating system re-installation.

Optional Registry Entries	Default Setting	Description
NetworkDiagram	x-pml:/diagrams/ud/ network.dgm	This value specifies the network diagram to display as the homepage for Diagrams. The value can be a relative path, such as the default setting, or it can be an absolute file path (e.g., D:\customdiagrams\ud\networkB.dgm).
QueryTimeout	See description	This value determines how long Diagrams waits for the results of a query to return from the database before timing out. If this registry entry is not created or no QueryTimeout valus is specified, Diagrams times out after 60 seconds. This optional registry entry is useful if you know that a query will take more than 60 seconds to return its results and you do not want Diagrams to time out before then. Specify a value that gives you enough time to get your query results.

Troubleshooting

Diagrams depends on the ION XML Subscription Service and ION XML Subscription Store Service to function properly. If you are experiencing difficulties with Diagrams pages (such as getting an error message when you try to open a device diagram), check to make sure these services have been started.

Unable to access the Diagrams application

If you cannot access the Diagrams application, the product may have been installed on the server with a different virtual root than the default of `Web`. For example, the default address is `http://`*domain_name*`/Web`, where *domain_name* is the Internet address of the server hosting the Diagrams application. Contact your system administrator for the full address.

No real-time data is displayed

This may be caused by security settings being reset by a Microsoft Windows update on the server. If this is the case, open Internet Explorer on the server, select **Tools > Internet Options**, then click the **Security** tab. Click the **Trusted sites** icon, then click **Sites**. Add the Web Applications site in the form of `http://`*domain_name*`/Web` to the **Trusted sites** zone. For example, for server name **srv1** and company name **MyCompany**, add the Web site as: `http://srv1.Mycompany.com/Web`

Page cannot be displayed

This may be caused by complex or large queries, such that the results do not arrive within the default Diagrams timeout setting of 60 seconds. If you suspect this is the case, add the custom DWORD registry key `QueryTimeout` and set it to a higher timeout value (for example, to `120` for 120 seconds).

Tick labels for gauges are unreadable

This may occur if you specify an unsupported font for the **Ticks Label Font**. To fix this, select only **TrueType** or **OpenType** fonts in Vista.

Tables

The Tables application allows you to quickly build an on-demand view of real-time data from devices configured in the Management Console component of your StruxureWare™ Power Monitoring Expert system.

⚠ WARNING

INACCURATE DATA RESULTS

- Do not incorrectly configure the software, as this can lead to inaccurate reports and/or data results.
- Do not rely solely on data results to determine if the system is 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, serious injury, or equipment damage.

When you click the **Tables** icon on the banner, the application window opens with a tables display pane on the left, and a tables configuration pane on the right.

Tables display pane

The Tables display pane on the left contains a table header area above a data display grid area.

Tables header

The Tables header contains the following fields and options:

Field or Option	Description
Table	Displays the title of the table selected in the **Table Library**. For tables that you defined, this field shows the table name that you saved.
Export	Opens the **Save As** window, where you can save the table as an Excel (XLsx) file.
Last Update	Displays the server date and time when the data in the table was last refreshed. Before you make any selections for a real-time table, the text reads **No data displayed**.
Update in / Updating	Provides a countdown for the interval that you select. All time intervals are expressed as minutes and seconds in an mm:ss format. Changes to **Updating** when the countdown reaches 0. If the **Update Interval** is set to **Continuous**, the label always indicates **Updating**.
Pause / Resume	Stops the next update countdown and retains the current data in the table. When you select **Pause**, the text changes to **Resume**. When you select **Resume**, the countdown continues for the remaining time in **Next Update**.

Field or Option	Description
Update Interval	Shows the default refresh rate for the data in the table. The initial setting is **5 seconds**, but you can choose other time periods from the list.

Data display grid

The data display grid is the area where the real-time data displays. The data is organized by device name in the left column of the grid, and measurement headings arranged in columns across the top of the grid.

Tables configuration pane

The Tables configuration pane on the right contains panels labeled **Table Library**, **Devices**, and **Measurements** that you use to select and configure a real-time table.

Table Library

The **Table Library** contains pre-defined and user-defined tables that are grouped under their respective folders. The number of folders that you see depends on your Power Monitoring Expert system access privileges.

The folders are:

- **System**: contains pre-defined tables included in Power Monitoring Expert.

- **Shared**: contains user-built tables that are visible to all users.

- **Private**: contains your user-built tables.

- **Other User Tables**: contains tables created by other users and saved in their **Private** folder. The **Other User Tables** folder is visible to users with an access level of Supervisor. Each table name in this folder is identified with the owner's user name.

Use the icons at the top of the **Table Library** to complete the following actions:

+	New	Clears the table display pane. Select one or more devices and measurements for the new table.
💾	Save	Opens the **Save Table** dialog. You can enter a name for the table and indicate whether to save it in your private or shared folder.
⚙	Edit	Opens the **Save Table** dialog for the selected table. Modify any of the settings for the table and click **OK**.
🗑	Delete	Permanently deletes a table. Users with supervisor-level access can delete any table that appears in the **Table Library**. All other users can only delete tables that they created.

Access levels and table folder visibility

Your access level determines which folders are visible in the Table Library. The following summary shows the folders that are visible for each access level.

Access privileges	Table Folders			
	System	Shared	Private	Other User Tables
Observer (View Only)	Yes	Yes	Yes	No
User	Yes	Yes	Yes	No
Controller	Yes	Yes	Yes	No
Operator	Yes	Yes	Yes	No
Supervisor	Yes	Yes	Yes	Yes

Devices

The Devices panel lists all of the devices, organized by group names, that are configured in your Power Monitoring Expert system.

Measurements

The Measurements panel lists all of the measurements associated with the devices configured in your Power Monitoring Expert system. The measurements are grouped in categories, such as Current, Energy, Power, Voltage. It also includes a **Favorite Measurements** category.

Use the icons at the top of the Measurements panel for the following actions:

∨	Open the measurement filter	Opens the measurement filter dropdown list. The default selection is **All**. Select **Common** to list the more commonly used measurements within each category. Click the ∧ icon to close the measurement filter list.
⚙	Edit Favorite Measurements	Opens the **Favorite Measurements** dialog. Use the dialog to add, edit, or delete a favorite measurement and click **OK**.

Favorite Measurements

Favorite Measurements provides a way to convert an existing device measurement to a calculated value for display in the real-time table. Favorite measurements can be configured, modified, or deleted by users with access levels of Operator, Controller or Supervisor. Each defined favorite measurement is available for selection in a real-time table.

Creating a favorite measurement

1. Click the **Edit Favorite Measurements** icon ⚙ to open the Favorite Measurements dialog.

2. Click **Add** to open the measurement configuration dialog:

3. In the **Type** list, select:

   - **All** to display all measurement categories.

   - A specific category in the list to display the measurements for that category. Available categories are **Air**, **Electricity**, **Environment**, **Generic**, **Natural Gas**, **Steam**, **Wastewater**, and **Water**.

4. In the **Show** list, select:

   - **All** to display all available measurements within each category specified by your **Type** selection.

- **Common** to display a list of the most commonly used measurements within the categories specified in your **Type** selection.

- **Consumption** to display only measurements related to consumption within the categories specified in your **Type** selection.

5. Enter a name in the **Display Name** field for the column label in the table.

6. Enter a unit of value in the **Display Unit** field to represent the underlying measurement, such as, kWh, kVAR, kVARh, and so on.

7. Enter a multiplier value in the **Multiplier** field to convert the data read from the device to a value for display in the table.

   Using a multiplier of 1 lets you organize your favorite measurements into this convenient group.

8. Click **OK** to save the favorite measurement.

   The favorite measurement is available for selection in the **Measurements** panel under the **Favorite Measurements** category.

Getting started with Tables

When you click **Tables** on the banner, the application opens and instructions appear in the data display area.

```
                      Please Select:

         A Table and one or more Devices.
                          or
     One or more Measurements and one or more Devices.
```

The instruction to select **A Table and one or more Devices** refers to selecting a table in the **System** folder of the **Table Library**, and then adding devices to the table by selecting them in the **Devices** panel. This instruction also applies to selecting a user-built table in the **Shared** folder when the table definition does not include devices. See Selecting a pre-defined table for further information.

The instruction to select **One or more Measurements and one or more Devices** refers to creating a table by selecting measurements and devices from the **Measurements** and **Devices** panels, respectively. See Creating a user-defined table for further information.

Note that if you are viewing a table and log out of the application or close the browser, the table you last viewed is automatically loaded when you return to the Tables application.

Selecting a pre-defined table

Pre-defined tables are located in the **System** folder in the **Table Library**.

Each of the pre-defined tables has a specific set of measurements that appear as column headings in the data display grid.

The **Table Library** displays all of the tables that are available for selection. This includes pre-defined tables in the **System** folder, user-defined tables in the **Shared** folder, and any of your own tables in the **Private** folder. The following information is specific to the tables in the **System** folder.

Selecting a table first, then devices

To display real-time data by selecting a table definition first, complete the following steps:

1. Select a table listed in the **System** folder or **Shared** folder.

   - The measurements associated with the selected table appear as column headings on the data display grid.

   - The table title appears in the header area.

   - The prompt in the data display grid indicates that you need to select one or more devices. (For a table in the **Shared** folder, this instruction appears only if devices had not been saved with the table definition.)

2. Select specific devices from the list (organized by group name) in the **Devices** panel.

   - The device name appears under the **Devices** column in the data display grid.

   - Real-time data begins to display in each of the measurement columns.

   - The **Last Update** field shows the date and time of the last data update.

If you select another table in the **System** folder (or **Shared** folder) where devices have not been specified as part of the table definition, the existing table is replaced with the new set of measurement headings for the devices that you previously selected.

Selecting devices first, then a table

To display real-time data by selecting devices first, complete the following steps:

1. Select specific devices from the list (organized by group name) in the **Devices** panel.

   - The device name appears under the **Devices** column in the data display grid.

   - The prompt in the data display grid indicates that you need to select a table or one or more measurements.

2. Select any of the tables from the **System** folder or a user-built table in the **Shared** folder.

   - The measurements associated with the selected table appear as column headings in the data display grid.

   - The table title appears in the header area.

   - Real-time data begins to display for the selected devices.

   - The **Last Update** field shows the date and time of the last data update.

If you select additional devices, each device name appears under the **Devices** column and real-time data begins to display in each of the measurement columns.

Note that if you add or rename devices in Management Console while you are logged in to the Tables application, the additional or renamed devices are not listed in the **Devices** panel unless you log out of the Tables application for 15 minutes, and then log back in.

Creating a user-defined table

User-defined tables are a combination of both the devices and the measurements that you select from the **Devices** and **Measurements** panels, respectively.

To create a user-defined table, complete the following steps:

1. If the data display grid already contains data, you can clear the grid by clicking **New** (the + icon) at the top of the **Table Library** panel, and then complete the following steps.

2. Select one or more devices (organized by group name) listed in the **Devices** panel.

   − The device name appears under the **Devices** column in the data display grid.

   − The prompt in the data display grid indicates that you need to select one or more measurements.

3. Select one or more measurements to associate with the selected devices.

   − The measurements appear as column headings in the data display grid.

     Real-time data for the devices appears in the measurement columns.

To refine your table, modify your selection of devices and measurements.

To save your table, click the **Save** icon to open the **Save Table** dialog.

- If you save a table with measurements but without devices, a green circle appears beside the table name.

- If you save a table with both devices and measurements, then a green checkmark appears beside the table name.

- If you attempt to save a table without any measurements, you are prompted to select one or more measurements before you can save the table.

To clear the data display grid, select **Clear Selection** at the top of both the **Devices** and **Measurements** panels, respectively. Alternatively, you can click **New** and select **No** on the save table prompt to clear the data display grid.

Note that if you add or rename devices in Management Console while you are logged in to the Tables application, the additional or renamed devices are not listed in the **Devices** panel unless you log out of the Tables application for 15 minutes, and then log back in.

Saving your table

After you have configured the table to display the data that you want to see, you can save the table in the **Table Library** for selection at another time.

1. Click the **Save** icon at the top of the **Table Library** panel to open the **Save Table** dialog.

2. Complete the following on the **General** page:

   a. Enter a table name in **Name** field.

   b. Select **Private** or **Shared** as the access option for the table.

      This selection determines who can view, edit or delete the table.

      Note that tables are saved in the **Private** folder by default for users with an access level of Observer or User.

   c. If you want to change your selection of **Measurements** or **Devices**, complete the following steps. Otherwise, click **OK** to save your table.

3. Click **Measurements** to open that page:

The measurements that you selected when you defined your table are also selected on this page.

If you want to refine the measurements associated with your table, you can add or remove measurements by selecting or clearing the adjacent check boxes.

4. Click **Devices** to open that page:

   The devices that you selected when you defined your table are also selected on this page.

   If you want to refine the devices associated with your table, you can add or remove devices by selecting or clearing the adjacent check boxes.

5. Click **OK** to save your table in the **Private** or the **Shared** folder in the **Table Library**.

   The folder for the saved table is determined by the access option that you selected on the **General** page.

Sorting and filtering data

You can sort and filter data in the data display grid by using the controls and options available in the column headings.

Sorting data

To sort data into a specific order or sequence in the data display grid, click the column heading. The first click sorts the data in ascending order, and the second click sorts the data in descending order.

- For the Devices column, the list of devices is sorted in ascending or descending alphabetical order by group name and then by device name.
- For measurement columns, the measurement data is sorted in ascending or descending numerical order.

Filtering data

To filter data in the data display grid:

1. Click the arrow in a column heading to display the filter settings for that column.

   The settings provide an operator selection list and a numeric field.

2. To change the filter parameter, open the parameter list and select one of the operators.

3. Enter a numeric value associated with the data in the column that you want to filter.

4. If you select the **Or** or **And** option, the operator list and numeric field below the option are enabled for further filter definition.

5. Click **Filter** to filter the data that appears in the column based on your selections.

   A filter icon appears on the right of the column heading to indicate that a filter is applied to the data in the column.

To remove filtering for a column:

1. Click the filter icon in a column heading to display the filter settings.

2. Click **Clear** to remove all entries from the filter.

Exporting a table

To export a table to an Excel spreadsheet:

1. Select the **Export** link above the **Devices** column to open the **Save As** dialog.

2. In the **File name** field, enter a name for the table that you are exporting.

3. The **Save as type** field indicates the file type of Xlsx.

4. Click **Save** to export the table and to return to the Tables application.

After you have exported the table, you can open the Excel file and save it in another format, for example, as a PDF file for printing or distribution.

User permissions

The following table summarizes user permissions for specific table operations. User permissions are assigned through User Manager, which is accessible from the **Tools** menu in Management Console.

Operation Allowed	User Permissions				
	Observer	**User**	**Controller**	**Operator**	**Supervisor**
View a pre-defined table in the System folder.	Yes	Yes	Yes	Yes	Yes
View a user-defined table in the Shared folder (saved with the Shared option).	Yes	Yes	Yes	Yes	Yes
Create, view, edit, delete your own table in the Private folder (saved with the Private option).	Yes[1]	Yes[1]	Yes	Yes	Yes
Save a table with the Shared option.	No	No	Yes	Yes	Yes
Delete any table created by other users.	No	No	No	No	Yes
Delete a pre-defined table.	No	No	No	No	Yes
[1] Tables are saved in the Private folder by default for users with access levels of Observer or User.					

Trends

The Trends application allows you to monitor current system conditions by displaying real-time data in a graphical format. You can configure trend settings to include data from the database as it is logged (referred to as historical data), or you can combine real-time data and historical data in the trend diagram. In addition, you can save the trend data as a csv file.

⚠ WARNING

INACCURATE DATA RESULTS

- Do not incorrectly configure the system; this can lead to incorrect reports and/or data results.
- Do not rely solely on reports or data results to determine if the system is 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, serious injury, or equipment damage.
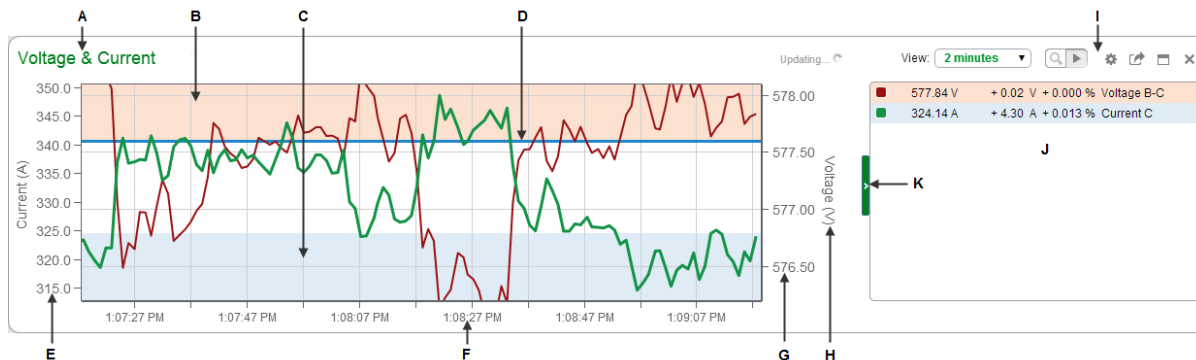
A	Title	**B**	Upper threshold	**C**	Lower threshold
D	Target line	**E**	Left axis	**F**	Scale (from View setting)
G	Right axis	**H**	Axis title	**I**	Trend options
J	Legend	**K**	Close/open toggle		

Getting started with Trends

When you click **Trends** on the banner, the application opens with the following instructions in the trend display pane.

```
To add content, enable an existing Trend or create a new Trend
```

To enable an existing Trend refers to selecting one or more trends in the **Shared**, **Private**, or **Other User Trends** folders in the **Trend Library**. (The **Other User Trends** folder is available only for users with supervisor-level access.)

To create a new trend, click the plus icon at the top of the **Trend Library** pane to open the **Add Trend** dialog.

The Trends interface

The Trends interface consists of a display pane on the left and a library pane on the right.

Trends display pane

The Trends display pane is the area where trend diagrams and data are displayed. See Available options for a trend for information about the icons that are available when a trend opens in the display pane.

When you create a trend, it automatically opens in the display pane and the checkbox for the trend is selected in the **Trend Library**. Three trends are visible in the display pane at any one time. You can scroll the display pane to view additional trends that have been selected.

If you log out of the application, your selections are preserved and are loaded in the display pane when you log in at a later time.

Trends library pane

The **Trend Library** contains trends that have been created and grouped under their respective folders. The number of folders that you see depends on your Power Monitoring Expert system access privileges.

The folders are:

- **Shared**: contains user-defined trends that are visible to all users.

- **Private**: contains trends that you created as private trends.

- **Other User's Trends**: contains trends created by other users and saved in their **Private** folder. The **Other User's Trends** folder is visible to users with an access level of Supervisor. Each trend in this folder is identified with the owner's user name.

Use the icons at the top of the **Trend Library** to complete the following actions.

+	Add	Opens the **Add Trend** dialog. Click the tabs in the dialog to configure the new trend.
⧉	Duplicate	Opens the **Duplicate Trend** dialog. You can enter a new title and indicate whether to save the duplicate in your private or shared folder.
⚙	Edit	Opens the **Trend Setup** dialog. You can modify any of the settings for the trend.
🗑	Delete	Permanently deletes a trend. Users with supervisor-level access can delete any trend that appears in the Trend library. All other users can only delete trends that they created.

Select or clear the checkbox beside a trend name in the **Trend Library** to display or remove it from the display pane.

Right-click a trend to open the context menu. This menu is available whether or not you selected the checkbox to view the trend. Enabled menu items are dependent on your access level. For example, users with an access level of Supervisor can duplicate or delete another user's trends, but they cannot open the trend in a new window or edit the trend.

The menu items are:

- **Open in New Window**: opens the trend in a new window or on a separate tab in your browser. If you want to share the trend with other users or applications within your system network, copy the URL from the address field of the new browser window or tab, and distribute it via email or instant messenger (IM), embed it in a Web page, and so on. Note that access to the trend is dependent on site policies and user access privileges.

- **Duplicate**: opens the **Duplicate Trend** dialog. See "Duplicating a trend" on page 53 for more information.

- **Edit**: opens the **Trend Setup** dialog. See "Modifying a trend" on page 53 for more information.

- **Delete**: opens the delete trend confirmation window. Click **OK** to delete the trend or **Cancel** to cancel the deletion.

See the following topics for additional information:

- "Adding a trend" on page 47

- "Modifying a trend" on page 53

- "Duplicating a trend" on page 53

- "Deleting a trend" on page 53

Adding a trend

To add a trend:

1. Click the plus icon ![plus icon] to open the **Add Trend** dialog.

2. On the **General** tab:

   a. Enter a title for the trend.

   b. Click **Add** under **Data Series** to open the **Add Data Series** dialog.

   c. Click a device name in the **Sources** area to select it.

      By default, the sources are listed in alphabetical order by group name and by device name within a group. You can use the **Search** field to find entries by device name, group name, or a combination of group and device names.

      Click **Advanced** to show the **Grouping** list, and select how you want to list the devices displayed in the **Sources** area.

      > **NOTE**: For large systems with many devices, it takes longer to choose a source from the source selector if you change the **Grouping** setting from its default value.

   d. For the selected device, expand a measurement type, for example **Voltage**, and click the specific measurement you want to include in your trend, for example **Voltage A-B**.

      The measurements are listed in alphabetical order by measurement category. You can use the **Search** field to find a specific measurement category or measurement.

   e. Select **Custom Name** if you want to enter a series name of your choice for trend data purposes. By default, a series name is a combination of device and measurement information

formatted as `group.device measurement`, for example `BldgA.meterA Voltage A-B`.

    f. Similarly, you can select **Custom Units** and enter a unit description of your choice.

    g. You can modify the following settings for each source measurement:

- **Style**: select the color and line thickness from the available choices in the dropdown menus.

- **Decimals**: select the number of decimal places for the data displayed in the legend.

- **Plot on**: select **Right** or **Left Axis** for the location of the measurement values for the selected measurement.

- **Overlay**: select the values that you want to overlay on the trend diagram. By default, no items are selected. The selections are **Min**, **Max**, and **Mean**.

- **Data Source**: select where to access the data for the trend diagram. The options are to gather series data from the device in real-time, gather series data from the database as it is being logged, or gather real-time series data from the device and historical data from the database to fill the trend diagram, if possible.

    h. Click **OK** to save your changes and close the **Add Data Series** dialog and to return to the **Add Trend** dialog.

    i. Click **Add** to specify additional devices and measurements for the trend.

    j. Select **Private** or **Shared** to save the trend in the private or shared folders, respectively. **Private** is selected by default.

3. On the **Axes** tab:

    a. Enter a label for the axes in the **Title** field under **Right Axis (Primary)** or **Left Axis (Secondary)**.

        Axis titles only appear if you have configured at least one measurement series and it appears on the trend diagram.

    b. For **Right Axis (Primary)** select **Auto** or **Custom** for **Max Value** for the data in the diagram. **Auto** is the default.

    c. Select **Custom** to enable the **Max Value** input field and the **Upper Threshold** checkbox.

        For **Custom**, specify the maximum value for the data by entering a value in the **Max Value** input field.

        If you select **Upper Threshold**:

- Select a color from the color selector for area shading on the trend diagram between the maximum value and the upper threshold value.

- Enter a value for the upper threshold in the input field.

        Each time the latest data point of a measurement series occurs in an upper or lower threshold, the color defined for the threshold also colors the background of the measurement series in the legend.

    d. Select **Auto** or **Custom** for **Min Value** for the data in the diagram. **Auto** is the default.

    e. Select **Custom** to enable the **Min Value** input field and the **Lower Threshold** checkbox.

       For **Custom**, specify the minimum value for the data by entering a value in the **Min Value** input field.

       If you select **Lower Threshold**:

         − Select a color from the color selector for area shading on the trend diagram between the minimum value and the lower threshold value.

         − Enter a value for the lower threshold in the input field.

           If the latest data point of a measurement series occurs in an upper or lower threshold, the color defined for the threshold also colors the background of the measurement series in the legend.

    f. Select **Target Line** then select a color from the color selector and enter a value for the target line in the input field.

       You can select the **Target Line** independently from the **Upper Threshold** or **Lower Threshold** settings.

    g. For **Left Axis (Secondary)** select **Auto** or **Custom** for **Max Value** and **Min Value** for the data in the diagram. **Auto** is the default.

       For **Custom** maximum or minimum, enter the values in the respective input fields.

4. On the **Chart** tab:

    a. Select the text size from the list.

       The text size property is applied to trend axis labels, the size of the legend, the legend text size, and trend data point tooltips.

       The default setting is **Medium**, and the choices are **Small**, **Medium**, or **Large**.

    b. Select the position of the legend included in the trend display area from the list.

       The default setting is **Right**, which places the legend on the right side of the trend diagram. The available choices are **Off**, **Left**, or **Right**.

    c. Select the content that you want to include in the legend from the available settings.

       The default selections are **Name** and **Value**. The additional selections are **Difference** and **Difference (%)**.

       Name is either the default measurement name in the form of `group.device measurement`, or the custom name that you specified on the **Add** or **Edit Data Series** dialogs.

       Value is latest data value and the unit of measurement. For example, for voltage measurements, the default value is *numeric_value* `V` such as `415.2 V`.

       Difference is the change in the measurement from one update to the next. For example, if the voltage is `415.8` and it changes to `416.1` at the next trend update, the difference appears as `+0.3` in the legend.

> **Difference (%)** is the percentage change in the measurement from one update to the next. For example, if the voltage changes from `415.8` to `416.1` at the next trend update, the difference expressed as a percentage appears as `+0.072%` in the legend.

5. On the **Data** tab:

   a. Specify the **Data Update Intervals** in the **From device** and **From database** dropdown lists.

   The default setting is `5 seconds` for data updates for Trends using the data directly from a device, and `5 minutes` for data updates for Trends with data from a database.

   b. Specify the **Data Points** for the x-axis of the trend diagram in the **Max per series** input field.

   The default setting is `40000`.

   The value must be between 100 and 500,000. Increasing the value adds more data points per series but this can result in a degradation of trend performance.

   Examples:

   − A data interval of 1 second equates to 3600 data points per hour (60 points per minute X 60 minutes per hour). At a setting of 40000 points, approximately 11.1 hours of data is retained for viewing (40, 000 points / 3600 points per hour = approximately 11.1 hours).

   − A data interval of 5 seconds equates to 720 data points per hour (12 points per minute X 60 minutes per hour). At a setting of 40000 points, approximately 55.5 hours of data is retained for viewing (40, 000 points / 720 points per hour = approximately 55.5 hours).

   − A data interval of 10 seconds equates to 360 data points per hour (6 points per minute X 60 minutes per hour). At a setting of 40000 points, approximately 111.1 hours of data is retained for viewing (40, 000 points / 360 points per hour = approximately 111.1 hours).

6. Click **OK** to save your settings and to close the **Add Trend** dialog.

Available options for a trend

The following set of options is available in the upper right when you open a trend in the display area.

These options are summarized in the following table.

ⓘ	Open the Diagnostic Log Viewer	This icon only appears if there is an error associated with the device. If the icon pulses, the viewer contains new information that has not yet been viewed. When you open the viewer you can click **Clear Log** to remove the existing entries. This action removes the icon from the trend display area until new information is logged in the viewer. Click **Close** to close the viewer and return to the trend display.
View: [**15 minutes** ▼]	View list	The setting for the time range on the X-axis. Select a time range from the dropdown list. The view window reflects the time in minutes or hours from the last data point read from the device. For example, if you are viewing a 15 minute window and the last data point occurred 20 minutes ago, then the trend time range spans the previous 35 to 20 minutes.
[🔍 ▶]	Inspect	Acts as toggle to enable and disable the inspection mode for the trend diagram. When you enable inspection mode, inspect icons appear on the trend diagram when you place your pointer anywhere on the diagram. A slider also opens below the X-axis. Use the slider to adjust the time range for the trend. Data values are not updated in the trend diagram but they continue to be updated in the legend. When you disable inspection mode, all data that was captured is shown.
⚙	Edit	Opens the **Trend Setup** dialog. You can modify any of the settings for the trend.
↗	Download trend data as CSV	Saves the current trend data that is displayed as a CSV file on your system. When events occur, you can download the data to a CSV file for further analysis.
▭	Maximize	Displays the trend diagram in a full browser page. Click the Restore icon ⧉ to return to the default size in the trend display area.
✕	Exit	Closes the trend diagram. This also clears the checkbox for the trend in the **Trend Library**.

If you right-click a trend in the **Trend Library** and select **Open in New Window** from the context menu, only the **Open the Diagnostic Log Viewer**, **View**, **Inspect**, and **Download Trend Data as CSV** options are available.

The legend

The legend opens on the right of the trend diagram by default. You can select **Left** or **Off** on the **Chart** tab in the **Add Trend** or **Trend Setup** dialog to change the location of the legend or to remove it from the trend display.
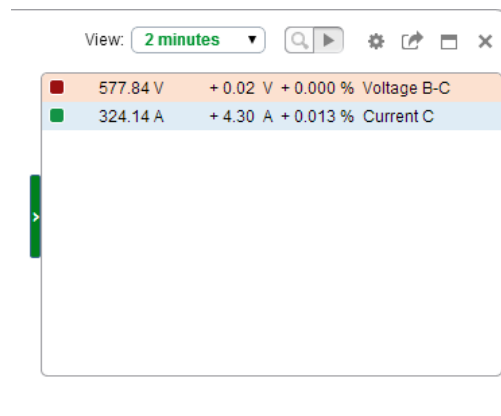
The legend provides the following capabilities:

- You can close and open the legend by clicking the arrow on the left side of the legend.

- If you have enabled multiple axes in your trend, when you place your mouse pointer over a measurement series in the legend, it indicates which axis the series is drawn on.

- You can temporarily disable a measurement series by clicking the color swatch for the series.

- The background color of a measurement series entry changes to match the threshold colors when the series passes into the upper or lower threshold. You set the threshold colors on the **Axes** tab of the **Add Trend** or the **Trend Setup** dialog.

Inspection mode

The following icons appear when you enable the inspection mode and you place your pointer on the trend diagram.
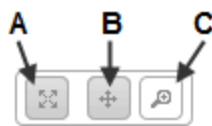
A	Reset Zoom (100%) - resets the trend diagram to its default size.
B	Pan the chart - after you zoom in to an area of the diagram, click **Pan the chart**, then click and hold the left mouse button on the diagram and drag it left or right.
C	Zoom in to selection area - zooms in when you drag the mouse over an area of the chart. The zoom action occurs when you release the left mouse button.

When the trend is in inspection mode, the trend diagram remains static until you toggle inspection mode off to return the trend diagram to its update mode. Note that the data in the legend continues to update in real time with the latest values even though the trend diagram remains static for analysis purposes. When you toggle inspection mode off, all of the data that was captured when you were in inspection mode is included in the diagram.

You can drag the slider below the X-axis to the right to decrease the time range for the trend. For example, if the time range is set to 15 minutes and you drag the slider to the right, the range values decrease, and if you continue to drag the slider to the right, the values decrease further to show minutes and seconds on the scale.

Modifying a trend

You can modify a trend by selecting the **Edit** icon ⚙ :

- Above a trend legend in the trend display area.
- In the **Trend Library** by selecting a trend and clicking the **Edit** icon.
- In the **Trend Library**, by right-clicking a trend and selecting the **Edit** menu item.

To modify a trend:

1. Click the **Edit** icon to open the **Trend Setup** dialog.
2. Retain or modify the settings for the trend in the **Trend Setup** dialog. (The settings are the same as the **Add Trend** dialog. See "Adding a trend" on page 47 for a description of the settings).
3. Click **OK** when you complete any changes to save your settings and to close the **Trend Setup** dialog.

Duplicating a trend

When you duplicate a trend, you can enter a new title and indicate whether to save the duplicate in your **Private** or **Shared** folder in the **Trend Library**.

To duplicate a trend:

1. Select the checkbox for the trend in the **Trend Library** pane and click the **Duplicate** icon 🗗 to open the **Duplicate Trend** dialog.
2. Retain or modify the settings for the trend in the **Duplicate Trend** dialog. (The settings are the same as the **Add Trend** dialog. See "Adding a trend" on page 47 for a description of the settings).
3. Click **OK** when you complete any changes to save your settings and to close the **Duplicate Trend** dialog.

Deleting a trend

To delete a trend:

1. Select the checkbox for the trend in the **Trend Library** and click the **Delete** icon 🗑 .
2. Click **OK** in the **Delete Trend** confirmation window to permanently delete the trend, or click **Cancel** to return to the Trends application.

Users with supervisor-level access can delete any trend that appears in the Trend library. All other users can only delete trends that they created.

Alarms

> **NOTE**: The Alarms application is not available for users whose access level is Observer or User.

The Alarms application allows users to view system alarms and events in a tabular format. You can tailor the system view to your needs by choosing which alarm states, priorities, date range, and devices you want to view. You can also select the columns that you want to see, thus controlling the information you find helpful.

⚠ WARNING

INACCURATE DATA RESULTS

- Do not incorrectly configure the system; this can lead to incorrect reports and/or data results.
- Do not rely solely on reports or data results to determine if the system is 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, serious injury, or equipment damage.

Getting started with Alarms

When you click **Alarms** on the banner, the application opens with a default view **Recent Alarms (24 hours)**. You can change the view to one of the other predefined system views that are available for alarms and events. You can also customize and save an alarm or event view for your use.

For information about changing alarm or event views, see:

-
-

For information about customizing and saving alarm or event views, see:

-
-

The Alarms interface

The Alarms interface includes:

- Alarms tab where you:
  - View all system alarms (active/inactive, acknowledged/unacknowledged) for a specified time period.
  - Link to waveforms associated with individual alarms.
  - Acknowledge alarms, singly or in groups.
- Events tab where you view all system events for a specified time period.

Setting views for alarms

The Alarms configuration pane on the right contains sections labeled **Alarm View Library** and **Selected View Settings** that you use to select the alarms that are to be listed in the Alarms display pane.

Selecting an alarm view

Use the **Alarm View Library** panel to select from among pre-defined or user-defined alarm views, which are grouped within their respective folders.

The folders are:

- **System Views**: contains the pre-defined alarm views:
  - **Alarm History** – displays alarms states (active or inactive), and acknowledged states (acknowledged or unacknowledged), in the system.
  - **All Active Alarms** – displays all active alarms in the system.
  - **All Active and Unacknowledged Alarms** – displays all active, unacknowledged alarms in the system.
  - **All Unacknowledged Alarms** – displays all unacknowledged alarms in the system.
  - **Recent Alarms (24 hours)** – displays all alarms from the most recent 24 hours.
- **Shared Views**: contains alarm views that are user-defined and are available for all users.
- **Private Views**: contains alarm views that you create and save in the **Private Views** folder.
- **Other User Views**: contains alarm views created by other users and saved in their **Private Views** folder. The **Other User Views** folder is visible to users with an access level of Supervisor.

Selecting options for an alarm view

Use the **Selected View Settings** section to specify the alarms you want to include in the view by choosing options within **Alarm State**, **Alarm Priority**, **Dates**, and **Devices** subsections.

The selections within each of these subsections are summarized in the following tables.

Alarm State	
The state options are not mutually exclusive. For example, you can list alarms that are both active and unacknowledged.	
Active State	Select **Active only** to display all active alarms. Select **Inactive only** to display all inactive alarms. Select **Both** to display both active and inactive alarms. To deactivate an alarm that is permanently active due to never receiving a dropout, see the Deactivate Alarms tool in the Management Console.
Acknowledged State	Select **Unacknowledged only** to include all unacknowledged alarms. Select **Acknowledged only** to include all acknowledged alarms. Select **Both** to include both unacknowledged and acknowledged alarms.

Alarm Priority	
High Priority	Select to include high priority alarms.
Medium Priority	Select to include medium priority alarms.
Low Priority	Select to include low priority alarms.

Dates	
All	Select **All** to include all alarms in the system, regardless of date.
Defined	Select **Defined** to choose a pre-defined time period, such as Last Hour, Today, or This Week.
Custom	Select **Custom** to choose a specific date range. Then click next to the Start date to open the calendar tool. Choose a start date. Repeat this action for the end date.

Devices	
Select All/Select None	Click **Select All** to include every device that has been added to Power Monitoring Expert or click **Select None** to exclude all devices.
Device list	Select individual devices to include them in the alarm view.

Creating user-defined alarm views

User-defined alarm views are customized saved copies of alarm views available in the **System Views**, **Shared Views**, or your **Private Views** folders in the **Alarm View Library** panel.

When you log in to Web Applications and access Alarms, the **Recent Alarms (24 hours)** view displays by default.

You can immediately begin to create your own alarm view by completing the following steps:

1. Modify the contents displayed in the view by:
    −   Selecting the columns that you want to include.
    −   Changing the order of the columns.
    −   Dragging a column header to the group-by column field.
    −   Changing any of the settings under **Selected View Settings** for alarm states, priorities, dates, and devices.

2. Click the **Copy** icon when you complete your view customization.

3. Enter a name for the view in the **New view name** field.

4. Select **Private** or **Shared** to specify that the new alarm view is for your exclusive use or that you want it to be available for other users, respectively.

5. Click **OK** to save the new alarm view.

   The header in the alarm display area now indicates your new view name.

To make any changes to your customized view:

1. Click the alarm view to open it in the alarm display area.

2. Modify any of the columns or settings.

3. Click the **Save** icon to save your settings.

To create an alarm view based on a previously saved view:

1. Click an alarm view to open it in the alarm display area.

2. Modify any of the columns or settings.

3. Click the **Copy** icon .

4. Enter a name for the view in the **New view name** field.

5. Select **Private** or **Shared** for the alarm view.

6. Click **OK** to save the new alarm view.

   The alarm view on which the new alarm view is based retains its original settings.

To edit the name of the view or to change it from Private or Shared:

1. Click the user-defined view to open it in the alarm display area.

2. Click the **Edit** icon .

3. If desired:

   a. Change the view name in the **Edit view name** field.

   b. Change the view from **Private** or **Shared**.

   c. Click **OK** to save your changes or **Cancel** to close the update panel.

To delete a user-defined alarm view:

1. Click the user-defined view and select the **Delete** icon .

2. Click **Yes** on the **Delete View** prompt to proceed or **No** to cancel the deletion.

Acknowledging alarms

When you acknowledge an alarm, it no longer annunciates. The Acknowledgement column displays the date and time that you acknowledged it.

NOTE: If more than one person acknowledges an alarm at the same time, the user name of the first person to complete the acknowledgment is displayed by the system. Although the second person is not prevented from continuing, only the first person's acknowledgment is recorded.

There are several ways to acknowledge alarms:

- Click **Acknowledge** at the top of the alarm view to open the Acknowledge Alarms dialog.

  a. Choose one of the following options:

     All unacknowledged alarms.

     Displayed unacknowledged alarms.

     Selected unacknowledged alarms.

  b. Type a descriptive note (optional).

  c. Click **Acknowledge**.

- Click the **Acknowledge** button in the **Acknowledgement** column for any of the alarms to open the Acknowledge Alarms dialog:

  a. Type a note (optional)

  b. Click **Acknowledge**.

- Below the grid, click **Show Alarm Details** to expand the bottom section.

  If you select one alarm in the grid, the bottom section shows its detail information.

  a. Click **Acknowledge** to open the Acknowledge Alarms dialog.

  b. Select **Selected unacknowledged alarms**.

  c. Type a descriptive note (optional).

  d. Click **Acknowledge**.

     Note that the options **All unacknowledged alarms** and **Displayed unacknowledged alarms** are also available in the dialog.

  If you select multiple alarms in the grid, the message in the **Show Alarm Details** section indicates that you can acknowledge all selected unacknowledged alarms.

  a. Click **Acknowledge All Selected** to open the Acknowledge Alarms dialog.

     Selected unacknowledged alarms is selected by default.

  b. Type a descriptive note (optional).

  c. Click **Acknowledge**.

     Note that the options **All unacknowledged alarms** and **Displayed unacknowledged alarms** are also available in the dialog.

Configuring software alarms for multiple sources and measurements

Click the **Configure Alarms** link to open the Alarm Configuration application. The application allows you to configure software alarms for multiple sources and measurements. Each alarm configuration is represented as an Alarm Rule. The rule includes a threshold value, pickup and dropout delays, text fields for default or user-defined descriptions for active and inactive alarm conditions, an update rate, and the alarm priority.

See the *Alarm Configuration Help*, available from the Alarm Configuration application, for information about creating, configuring, and enabling alarm rules.

Setting views for events

The Events configuration pane on the right contains sections labeled **Event View Library** and **Event View Settings** that you use to select the events that are to be listed in the Events display pane.

Selecting an event view

Use the **Event View Library** to select from among pre-defined or user-defined event views, which are grouped within their respective folders.

The folders are:

- **System Views**: contains the pre-defined alarm views:
    - **All Events** – displays all events that occurred in the system.
    - **Recent Events (24 hours)** – displays all events that occurred in the system in the last 24 hours.
    - **This Month's Events** – displays all events that occurred in the system in the current month.
    - **This Week's Events** – displays all events that occurred in the system from Sunday through Saturday of the current week.
    - **This Year's Events** – displays all events that occurred in the system in the current calendar year.
- **Shared Views**: contains event views that are user-defined and are available for all users.
- **Private Views**: contains event views that you create and save in the **Private Views** folder.
- **Other User Views**: contains event views created by other users and saved in their **Private Views** folder. The **Other User Views** folder is visible to users with an access level of Supervisor.

Selecting options for an event view

Use the **Event View Settings** section to specify the events you want to include in the view by choosing options within **Event Priority**, **Dates**, and **Devices** subsections.

The selections within each of these subsections are summarized in the following tables.

Event Priority	
Minimum Priority	You can either type a number into each of the combo boxes, or click the up or down arrow to select the minimum and maximum priority levels of events you want to view. Valid numbers are from 0 to 255.
Maximum Priority	

Dates	
All	Select **All** to include all events in the system, regardless of date.
Defined	Select **Defined** to display events from a pre-defined time period, such as Last Hour, Today, or This Week.

Dates	
Custom	Select **Custom** to choose a specific date range. Then click 🗓 next to the **Start** to open the calendar tool for selection of a start date. Repeat this action for the end date.

Devices	
Select All/Select None	Click the appropriate link to either include every device or to deselect all devices.
Device list	Select individual devices to include them in the view.

Creating user-defined event views

User-defined event views are customized saved copies of event views available in the **System Views**, **Shared Views**, or your **Private Views** folders in the **Event View Library** panel.

When you log in to Web Applications and click the **Events** tab in Alarms, the **Recent Events (24 hours)** view displays by default.

You can immediately begin to create your own event view by completing the following steps:

1. Modify the contents displayed in the view by:

   - Selecting the columns that you want to include.

   - Changing the order of the columns.

   - Dragging a column header to the group-by column field.

   - Changing any of the settings under **Event View Settings** for alarm priorities, dates, and devices.

2. Click the **Copy** icon ＋ when you complete your view customization.

3. Enter a name for the view in the **New view name** field.

4. Select **Private** or **Shared** to specify that the new event view is for your exclusive use or that you want it to be available for other users, respectively.

5. Click **OK** to save the new event view.

   The header in the event display area now indicates your new view name.

To make any changes to your customized view:

1. Click the event view to open it in the event display area.

2. Modify any of the columns or settings.

3. Click the **Save** icon 💾 to save your settings.

To create an event view based on a previously saved view:

1. Click an event view to open it in the event display area.

2. Modify any of the columns or settings.

3. Click the **Copy** icon.

4. Enter a name for the view in the **New view name** field.

5. Select **Private** or **Shared** for the event view.

6. Click **OK** to save the new event view.

   The event view on which the new event view is based retains its original settings.

To edit the name of the view or to change it from Private or Shared:

1. Click the user-defined view to open it in the event display area.

2. Click the **Edit** icon.

3. If desired:

   a. Change the view name in the **Edit view name** field.

   b. Change the view from **Private** or **Shared**.

   c. Click **OK** to save your changes or **Cancel** to close the update panel.

To delete a user-defined event view:

1. Click the user-defined view and select the **Delete** icon.

2. Click **Yes** on the **Delete View** prompt to proceed or **No** to cancel the deletion.

Alarms tab

The **Alarms** tab displays alarm information in a tabular format.

You can select pre-defined or user-defined views from the **Alarm View Library** area. You can also filter the data in the view by changing the selections in the **Selected View Settings** area.

Alarms tab – header area

The Alarms tab header area contains:

- The title for the selected view, for example **View: All Unacknowledged Alarms**.
- **Alarms Displayed** showing a count of the number of alarms displayed in the table.
- **Unacknowledged Alarms** showing a count of all of the unacknowledged alarms. Depending on the view you select, there is also a count indicating the portion of unacknowledged alarms that are not displayed in the table.
- **Acknowledge** opens the Acknowledge Alarms dialog. See "Alarms tab" on page 62 for more information.
- An update interval list with update intervals you can select for the data. The default is 10 seconds.
- **Select Columns** opens the Grid Column Selector dialog. See "Alarms tab" on page 62 for more information.
- **Edit Settings** link opens the Settings dialog for Alarm Annunciator options and for event and alarm priority options. See "Setting options for alarms and events" on page 66.

- **Configure Alarms** opens the Alarm Configuration dialog, which you can use to configure software alarms for multiple sources and measurements. See "Configuring software alarms for multiple sources and measurements" on page 59.

Alarms tab – display area

The display area contains a grid containing alarm entries. The data associated with the entries is organized in columns.

Alarms tab – grid column headings

The following table describes the possible columns in the Alarms display pane. The column names match their order in the Grid Column Selector. See "Alarms tab" on page 62 for information about selecting which columns to include in the grid.

NOTE: Entries in bold in the alarm view are unacknowledged alarms.

Column Name	Description
Drag a column here ...	This area is used to group alarms according to column headings. When you drag a column heading here, it creates a button with that column's name. When you click this button, you display alarms for that column only.
n/a	When a waveform is associated with an alarm, this column contains an icon ✉ representing a waveform. See "Alarms tab" on page 62 for further information.
Active	When an alarm is active, this column contains a flag icon 🏳. To deactivate an alarm that is permanently active due to never receiving a dropout, see the Deactivate Alarms tool in Management Console.
Start Time	The date/time that the alarm was first triggered, that is, the pickup time.
End Time	The date/time that the alarm ended, that is, when the measurement returned to a normal reading.
Duration	The length of time from when the alarm was triggered to when it dropped out.
Device	The device that recorded the alarm.
Priority	Alarm priority as it is established in the system. The icon for the priority level displays in this column. Options are: ❌ (high priority) ⚠ (medium priority) ℹ️ (low priority)
Priority #	The alarm priority number for alarms in the alarm grid area.
Type*	The alarm type, as recorded from the device.

Condition*	The condition that caused the alarm. The condition can be a text string or a number, depending on the configuration options available on a device. When the alarm is active, this is the condition indicating that active state, for example, ON. When the alarm is inactive, this is the condition indicating that inactive state, for example, OFF.
Active Condition	A descripiton indicating that the alarm is active, for example ON or TRUE. You can specify this description on the **Details** tab when you create or edit an Alarm Rule in the Alarm Configuration application.
Inactive Condition	A descripiton indicating that the alarm is inactive, for example OFF or FALSE. You can specify this description on the **Details** tab when you create or edit an Alarm Rule in the Alarm Configuration application.
Measurement	The measurement associated with the alarm.
Value	When the alarm is active, this is the value of the measurement when the alarm is triggered, that is, the start value. When the alarm is inactive, this is the value of the measurement when the alarm becomes inactive, that is, the end value.
Start Value	The value of the measurement when the alarm was first triggered.
End Value	The value of the measurement when the alarm ended, that is, returned to normal.
Acknowledgement	If the alarm has not been acknowledged, this column contains an **Acknowledge** button. Click the button to open the Acknowledge Alarms dialog, type a note for reference purposes if necessary, then click **Acknowledge**. You can acknowledge multiple alarms. For instructions, see Alarms tab. After an alarm is acknowledged, this column displays the date and time that it was acknowledged.
Acknowledged By	Before an alarm is acknowledged, this column is blank. After the alarm is acknowledged, this column displays the ION log-in name of the user who acknowledged it.

* The combination of the **Type** and **Condition** columns constitutes the effect and effect value of the alarm. For example, "kVAR Alarm" in the **Type** column and "ON" in the **Condition** column indicates that a setpoint status for setpoint module labelled "kVAR Alarm" has changed to the on state.

Select columns for alarm data

Click the **Select Columns** link to open the Grid Column Selector. Use the selector to choose the columns that you want to include in the alarm view.

To select/deselect columns to appear in the alarm view, do one of the following:

- Click **Select All** to display all columns.
- Select the individual column names.
- Click **Select None** to clear the current selections.

Click **OK** when you are finished.

View devices/waveforms

When a waveform is associated with an alarm, a waveform icon displays in the left column. To view the associated device type:

1. Click in the left column of the alarm entry for which you want to view the waveform.

2. When the Diagrams application opens (also accessed when you click Diagrams in the banner), click the **Power Quality** tab.

3. Click **Waveforms / Sequence of Events**.

4. Choose the period of time for the waveform you want view.

5. Click **Show Table**.

6. At the table listing the waveforms that were captured during the specified timeframe, locate the waveform you want to view; check the boxes for the measurements to be included in the waveform.

7. Click **Show Graph** to view the waveform.

For additional information about navigating and using Diagrams, see the Diagrams topic in the online help.

Alarms tab – Show Alarm Details area

To view details about any alarm, click the alarm in the grid to highlight it, then click **Show Alarm Details** below the grid area to expand the bottom section. The information includes sepcific details about the alarm entry, as well as the information related to alarm acknowledgement.

Events tab

The **Events** tab displays event information in a tabular format.

You can select pre-defined or user-defined views from the **Event View Library** area. You can also filter the data in the view by changing the selections in the **Event View Settings** area.

Events tab – header area

The Events tab header area contains:

- The title for the selected view, for example **View: This Week's Events**.

- **Events Displayed** showing a count of the number of events displayed in the table.

- An update interval list with update intervals you can select for the data. The default is 10 seconds.

- **Select Columns** opens the Grid Column Selector dialog. See for more information.

Events tab – display area

The display area contains a grid containing entries for events. The data associated with the entries is organized in columns.

Events tab – grid column headings

The following table describes the possible columns in the table. The column names match their order in the Grid Column Selector.

Column Name	Description
Timestamp	The date and time that the event occurred.
Device	The device that recorded the event.
Priority	This is the priority level (0–255) that is assigned to the event.
Event	The name of the event.
Condition	The condition that caused the event. When the event is active, this is the condition indicating that active state, for example, ON. When the event is inactive, this is the condition indicating that inactive state, for example, OFF.
Measurement	The measurement observed: currents, volts, etc.
Value	When the event is active, this is the value of the measurement when the event is triggered, that is, the start value. When the event is inactive, this is the value of the measurement when the event becomes inactive, that is, the end value.
Id	The number associated with the event when it first occurred, automatically assigned in chronological order.

Select columns for events data

Click the **Select Columns** link to open the Grid Column Selector, in which you select the columns that you want to include in the event view.

To specify which columns appear in the event view, do one of the following:

- Click **Select All** to display all columns.

- Select the individual column names.

- Click **Select None** to clear the current selections.

Click **OK** when you are finished.

Alarm and event settings

Click the **Edit Settings** link (on the **Alarms** tab) to open the Settings dialog for alarms and events. See Setting options for alarms and events for further information.

Setting options for alarms and events

The Settings dialog contains 2 areas: the alarm annunciator area, and the event and alarm priority classification area. Note that changes in these settings apply to all users.

Specifying Alarm Annunciator options

Use the alarm annunciator area in the top portion of the dialog to specify whether or not to display the annunciator in the user interface, to specify when an audible notification should occur, and to indicate the time period to use for including the number of generated alarms in the Alarm Annunciator.

1. Clear the **Show the Alarm Annunciator** checkbox to stop displaying the Alarm Annunciator in the user interface. The default is to show the Alarm Annunciator.

When you clear the checkbox, a note indicates that all audible alarms are disabled when the Alarm Annunciator is not visible.

2. Select one of the following audible alarm notification options. The default option is **On Low, Medium or High Priority Alarms**.

   a. **On Low, Medium or High Priority Alarms** specifies that an audible notification occurs for any alarm priority.

   b. **On Medium or High Priority Alarms** specifies that an audible notification occurs for medium or high priority alarms only.

   c. On **High Priority Alarms** specifies that an audible notification occurs for high priority alarms only.

   d. **Disabled** specifies that the audible notification is turned off regardless of the alarm priority. This option also removes the audible alarm on/off icon from the Alarm Annunciator.

3. Use the list under **Views include alarms generated within** to select the time period for the inclusion of the number of generated alarms in the alarm grid views. The default value is **3 Months**. You can select from a variety of monthly time periods or select **All Times** to include all the alarms generated.

Specifying event and alarm priority options

Use the event and alarm priority classification area in the bottom portion of the dialog to customize the priority identification for alarms displayed in the Alarms application by adjusting the priority values. By default, values of 192 or above are considered High priority alarms, values of 128 to 191 are considered Medium priority alarms, and values of 64 to 127 are considered Low priority alarms. Values of 63 or below are not identified as alarms.

To change the values for alarm priorities:

1. Click the up or down arrow in the spin control to reset the low threshold value of 192 for high priority alarms. When you modify this value, the high threshold value for medium priority alarms automatically changes. For example, if you change the low threshold value from 192 to 195, the high threshold value for medium priority alarms automatically changes from 191 to 194.

2. Click the up or down arrow in the spin control to reset the low threshold value of 128 for medium priority alarms. When you modify this value, the high threshold value for low priority alarms automatically changes. For example, if you change the low threshold value from 128 to 130, the high threshold value for low priority alarms automatically changes from 127 to 129.

3. Click the up or down arrow in the spin control to reset the low threshold value of 64 for low priority alarms. When you modify this value, the high threshold value for events not identified as alarms automatically changes. For example, if you change the low threshold value from 64 to 68, the high threshold value for events not identified as alarms automatically changes from 63 to 67.

Alarm Annunciator

The Alarm Annunciator displays in the header area.

Place the mouse pointer on any of the numbers on the annuciator to open a tooltip indicating:

- A total of all **Active Alarms** with subtotals **Active Unacknowledged Alarms** and **Active Acknowledged Alarms** in their respective high, medium, and low prioirties.

  The numerical values are underscored with red, yellow, and blue lines to identify high, medium, and low priority alarms, respectively.

- A total of all **Inactive Unacknowledged Alarms** with subtotals by priority.

  The numerical value is underscored with a gray line.

The alarm annunciation indicator gives a audible indication that there are **Active Unacknowledged Alarms**. Click the indicator to toggle it off for your current session. The annunciation indicator returns to the default "on" state the next time you log on.

See Setting options for alarms and events for information about specifying Alarm Annunciator options.

The Alarm Annunciator is not available for users logged in with user-level or observer-level access.

Reports

The Web-based Reports application allows you to select, configure, generate, and manage comprehensive reports based on historical data contained in your databases.

The reports are designed for energy consumption and usage, power quality compliance and analysis, and generic system usage. The reports can be generated on a defined schedule and when system events and device alarms occur, and then distributed via email or sent to a file share or a printer.

⚠ CAUTION

INACCURATE DATA RESULTS

- Do not incorrectly configure the system; this can lead to inaccurate reports and/or data results.
- Do not rely solely on reports or data results to determine if the system is 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 injury or equipment damage.

NOTE: Users of the Excel-based Reporter application can continue to access it by double-clicking the Reporter shortcut on your desktop. See the "Reporter" topic in the online *Power Monitoring Expert Help* for additional information. Also note that a Reporting Client is available for installation on client computers. See the *StruxureWare Power Monitoring Expert Installation Guide* for information about this optional setup type.

Reports terminology

- **Report Definition**: The report definition consists of such things as layout, the inputs that need to be specified to run the report, and the information in the database that is accessed for that report.

- **Report Input Parameters (or Inputs)**: Parameters that must be entered before a report can be generated. For most of the report definitions, default values for some of the parameters are provided. You can change these values for your specific requirements.

- **Report**: A report that is generated from a report definition that has been saved with some or all of its input parameters completed.

- **Saved Report**: A report that has been saved with all of its input parameters completed.

Prerequisites for the Reports application

Prior to using the Reports application, open Reporting Configuration Manager in Management Console (**Tools > Reporting Configuration > Reporting Configuration Manager**) to specify the database for the report data, subscription delivery options, and regional formatting settings. See the "Reporting Configuration Manager" topic in the Management Console Tools section of *Power Monitoring Expert Help*.

Getting started with the Reports application

When you click the **Reports** icon on the banner, the application opens with the following instructions in the display pane:

```
No report selected. Please choose one from the report library.
```

The reports are organized within folders in the **Report Library**. Each folder name indicates the intended purpose of the reports within it.

The Reports interface

The Reports interface consists of a display pane on the left and a library pane on the right.

Reports display pane

The Reports display pane is the area where you specify the input parameters for a report, and where the generated report displays. The input parameters are dependent on the report you select. See Report input parameters for further information.

Report toolbar

After you generate a report, the toolbar at the top of the display pane allows you to:

- Navigate through the pages of the report by using the forward and backward arrows.
- Use the Download report as dropdown list to download the report as a PDF file, an Excel document, or a TIFF image file.

Reports library pane

The **Report Library** allows you to select a report definition or a saved report to view or generate. Your selection opens in the display pane. Click < on the bar at the right to open the **Report Library** if it is not visible.

Report names are preceded by a report icon . Icons with a white circle indicate that you need to enter at least some of the inputs. Icons with a black circle indicate that all of the inputs have been saved; the report can be generated without entering any inputs.

Use the icons at the top of the **Report Library** for the following:

+	New	Create a new report from an existing report definition.
	Save	Save a generated report.
	Subscribe	Create a subscription for the saved report.
	Manage	Manage reports by selecting **Manage**, **Share**, or **Subscribe** options.
	Upload Report Template	Add a report definition to the **Report Library**.
	Upload Report Pack	Add a report pack to the **Report Library**.

NOTE: The availability of reports in the Report Library is dependent on licensing. You can view all of the report packs that are installed with the product by clicking the **Upload Report Pack** icon on

the **Report Library** toolbar. Only those report packs that are licensed can be uploaded if they do not appear in the Report Library. For a licensed report pack, click **Install** on the **Report Pack Install** dialog to upload the reports in the selected report pack.

Generating and viewing a report

To generate a report from a report definition or from a report with some inputs saved:

1. Select the report definition in the **Report Library**.

2. Complete the required input parameters. (See Report input parameters.)

3. Click **Generate Report**. The report displays in the report display pane.

4. Click the forward and backward arrows at the top to navigate through the pages of the report (if there are multiple pages).

After you generate a report, you can display or change the inputs you specified for it by clicking **show inputs** in the top-right corner of the report display area. To return to the generated report without changing any of the inputs, click **hide inputs**. If you change any of the inputs, click **Generate Report** to regenerate the report.

To generate a saved report (a report with some or all inputs defined and saved), select the report from the **Report Library**. For reports with all inputs defined, the report is generated and displayed in the report display pane. When you select a report with only some inputs specified, the report input parameter area opens so that you can specify the remaining required parameters before you can generate the report. (To see which parameters have been defined, click **show saved inputs** next to the report name in the input parameter area.)

NOTE: Each report icon has a small circle on its lower right corner. If the circle is green, it is a Defined Report—it has all of its inputs completed. If the circle is white, you need to fill in inputs before you can generate it.

The date and time shown on the generated report is the server local date and time. To alter the format of the date and time for a specific region, change the settings on the **Regional Formatting** tab of the **Reporting Configuration Manager**. Go to Management Console and select **Tools > Reporting Configuration > Reporting Configuration Manager**.

After you generate a report, you can do any of the following:

- Download the report as a PDF file, an Excel document, or a TIFF image file. See Downloading a report.

- To enable subscriptions for the report, save the report with all of the inputs configured, then click **Manage** in the **Report Library** to open the **Manage Reports** dialog and select **Subscribe**. See Creating report subscriptions.

- Click **show inputs** or **hide inputs** to show and modify report inputs or to hide the report inputs, respectively.

Downloading a report

You can download generated reports in the following formats:

PDF	Creates a PDF of the report that you can view in Adobe Reader.
Excel	Creates a version of the report in Excel format that you can view in Microsoft Excel.
TIFF	Creates a TIFF image file of the report.

To download a report:

1. Select the format you want from the **Download report as** list at the top of the report display area and select the **Open**, **Save**, or **Cancel** option in the pop-up.

2. Choose one of the following actions:

   a. Click **Open** to open the report locally on your computer in the format you selected. This requires that a compatible program for the format you selected exists on the computer.

   b. Select **Save** to save the report on your computer in the format that you selected.

   c. Select **Cancel** to exit the download process.

If you download a report in PDF format, and the report has multiple columns of data in a wide table (that is, if it has multiple measurements or multiple sources), the columns may appear on multiple pages in the file.

Saving a report

You can save a report before or after you generate it. In both cases, you need to specify all of the input parameters for the report.

- If you intend to create a subscription for the report, you need to ensure that all of the input parameters are selected in the **Save Report** dialog before you save it.

- If you intend to generate the report manually rather than by subscription, you can select the input parameters in the **Save Report** dialog that you want to save and specify the remaining parameters when you select the report for generation.

  For example, you may always want to generate an Energy Cost report for a specific number of devices for the previous month. When you save the report, you can save it with the inputs for the devices and time period predefined.

To save a report:

1. Click a report definition in the **Report Library** pane to open it in the display pane.

2. Specify all of the input parameters required for the report.

3. If you do not want to generate the report, click the **Save** icon 💾 on the **Report Library** toolbar to open the **Save Report** dialog, or click **Generate Report** and after the report has been generated click the **Save** icon.

   The **Save Report** dialog opens.

4. Type a name for the report in the **Name** field.

5. In the location box below the **Name** field, select the location for the saved report or click **New Folder** to create a new folder for it. (Note that you cannot nest one folder inside another.)

6. In the section at the bottom of the dialog, select **show previously saved inputs** and clear the

check boxes for the inputs that you do not want to save with the report.

When you generate one of these reports, you need to enter information for the inputs that were not saved.

7. Click **OK** to save the report with the inputs you selected.

Report management, sharing, and subscriptions

The **Manage Reports** dialog provides options to manage, share, and subscribe to reports.

Open the dialog by clicking the **Manage** icon ✼ at the top of the **Report Library** pane. The following options are available:

- Manage – create a new folder, delete or rename a folder or report, or move or copy a report from one folder to another.
- Share – make a report available to a user or group.
- Subscribe – generate a report on a defined schedule or when system events or device alarms occur, and distribute it via email or send to a file share or a printer.

Managing a report

Use the **Manage** option in the **Manage Reports** dialog to create a new folder, delete or rename a folder or report, or move or copy a report from one folder to another.

1. Click the **Manage** icon ✼ in the **Report Library** and select **Manage**.

2. Select the report (or folder) that you want to manage.

3. Select one of these options:

   a. **New Folder**: When the **Create New Folder** dialog opens, type the name of the new folder and click **OK**. The new folder appears in the list. (Note that you cannot nest one folder inside another.)

   b. **Delete**: A prompt appears asking you to confirm the deletion (unless you have selected an empty folder—in this case the folder is deleted without confirmation). Click **OK** to delete the report. If there are any subscriptions for the report, the prompt informs you of the subscriptions.

   c. **Rename**: Type the new name in the field at the bottom of the screen. Click **Update** to save the change.

   d. **Copy**: Select the location where you want to copy the report and click **Update**. The report is copied to that location. The name of the copied report is "Copy of <report>", where <report> is the original report name.

   e. **Move**: Select the new location and click **Update**. The report is moved to the new location.

Sharing a report

Use the **Share** option on the **Manage Reports** dialog to make a report available to a user or group. Users with supervisor-level access can share any report; all other users can only share reports that they own.

1. Click the **Manage** icon ✕ in the **Report Library** and select **Share**.

2. Select the report that you want to share from the list box.

3. Select the users or groups that you want to share the report with from the **Available Users & Groups** box, then click the right arrow to move the users or groups to the **Share List**.

   To remove users or groups from the **Share List**, select the users or groups and click the left arrow.

   Select **Order by type** to order the lists alphabetically by group then by user.

4. Click **Apply**.

   The report is available to the users in the **Share List**.

Subscribing to a report

A subscription is a report which is delivered in a specified manner at a defined interval. For example, a subscription can be configured so that a report is generated monthly and sent via email to a group of people. It can also be generated and sent when a specified alarm condition occurs.

Configuring subscription options

Before configuring certain types of subscriptions, you need to configure reporting subscription options such as the SMTP server for email subscriptions or how to handle files when report subscriptions are written to a fileshare. See the "Reporting Configuration Manager" topic in the Management Console Tools section of the online *Power Monitoring Expert Help* for information about configuring these options.

Adding a subscription

You can only create subscriptions for reports you have access to (see Sharing a report). The report must be a saved report that has all of its inputs configured (see Report inputs and Saving a report).

1. To create report subscription:

   a. Click the **Subscribe** icon ✉ on the **Report Library** toolbar, or

   b. Click the **Manage** icon ✕ on the **Report Library** toolbar and select the **Subscribe** radio control.

2. Select a report in the list and click **Add** to open the **Add New Subscription** dialog.

3. Type a name for the subscription in the **Name** field. This is the name that displays in the list of subscriptions.

4. Select the output format.

5. Select a delivery mode:

   − **Email**: Click **Distribution List**. Enter the email addresses of the personnel that you want to send the report to and click **Add** after each address. (Select an address from the list

and click **Remove** to remove it.) Click **OK** when the list is complete. In the **Add New Sub-scription** dialog, use the **Subject** field to type the text you want in the subject line of the email.

- **File share**: Type the location of the computer and folder where you want the report to be saved. You must type the absolute pathname to the folder (including the drive letter). The Windows user account "IONUser" must be configured with valid credentials to read and write to that fileshare. See your system administrator for assistance. To overwrite an exist-ing report (if one exists in the folder), select **Overwrite existing file**. To leave an existing file in the folder and save the report with a new name, clear **Overwrite existing file**.

- **Printer**: From the dropdown list, select the printer to which you want to send the report.

> **NOTE**: For printed subscriptions, the printer must be a local printer on the Primary Server. For information on setting a network printer as a local printer, consult your server's documentation.

6. In the **Subscription Schedule** section, define the schedule on which you want the report to be generated and delivered:

- **On Alarm**: Select this option to configure the subscription to run on an alarm. Select the event from the list that you want to use to trigger the subscription. To use this option, you must first configure an Event Watcher. See the *Event Watcher* topic in the online help for Management Console Tools for information on creating an Event Watcher.

- **Once**: Select this option to run the report once at the specified day and time. Use the arrow beside the **Date** field to open a calendar where you can select the date. Type the time into the **Time of Day** field or use the up/down arrows to change the hours and minutes.

- **Hourly**: Select this option to run the report every hour. Select the time from the dropdown list (for example, on the hour, 15 minutes after the hour, and so on).

- **Daily**: Select this option to run the report once per day at the specified time. Type the time into the **Time of Day** field or use the up/down arrows to change the hours and minutes.

- **Weekly**: Select this option to run the report once per week at the time and on the day of the week that you specify. Select the day from the dropdown list. Type the time into the **Time of Day** field or use the up/down arrows to change the hours and minutes.

- **Monthly — Monthly by Date**: Select **Monthly** then select **Monthly by Date** to run the report on selected dates in the calendar month at a specified time. Type the dates in the **On calendar day(s)** field. Separate multiple dates with a comma. To select a range of con-tiguous dates, separate the first and last date in the range with a hyphen. For example, to schedule the report to run on the 1st, 10th to 15th, and 20th days of the month, type 1, 10-15, 20. After you have entered the dates, type the time into the **Time of Day** field or use the up/down arrows to change the hours and minutes.

- **Monthly — Monthly by Day**: Select **Monthly** then select **Monthly by Day** to run the report on a specific day of the week in a selected week of the month at a specified time. For example, to set the subscription to run on the Monday of the last week of the month,

select **Last** and **Monday** from the dropdown lists. Type the time into the **Time of Day** field or use the up/down arrows to change the hours and minutes.

7. Click **Test Now** to test that the report subscription configuration is functioning.

8. Click **Save** to save the subscription.

The subscription appears in the list of subscriptions for the selected report.

Subscription errors and solutions

Certain messages may appear when you try to add subscriptions. For example, you may not be able to add the subscription in certain situations, or you may be able to add it but the output is not delivered successfully.

The following table summarizes possible messages, their cause, and suggested solutions.

Message	Cause	Solution
SQL Agent service not started	The SQL Server Agent (ION) service is not running. Subscriptions cannot be delivered.	On the Primary Server, click **Start > Settings > Control Panel**. Select Administrative Tools, then select Services. Right-click the SQL Server Agent (ION) service and select **Start**.
Report Subscription Service not started	The ION Report Subscription Service is not running. Subscriptions cannot be delivered.	On the Primary Server, click **Start > Settings > Control Panel**. Select Administrative Tools, then select Services. Right-click the ION Report Subscription Service and select **Start**.
"From" email address incorrectly configured	The email "from" address is either not set or has an incorrect configuration.	On the Primary Server, open the Reporting Configuration dialog box in Management Console (**Tools > Reporting Configuration**). Enter a valid email address. For example, myemail@mycompany.com.
Path syntax invalid	The file share pathname entered is not correct.	Enter a valid UNC (Universal Naming Convention) pathname.

Installing a report definition or a report pack

Report definitions and report packs can be developed by Schneider Electric or any other organization skilled at developing content for Microsoft Reporting Services. To create report definitions, report developers use Microsoft Business Intelligence Development Studio, which can be specified for installation with SQL Server.

A new report definition can be installed in the Reports application and made available to users. Users can generate and save reports based on the new report definition.

Report Definition versus Report Pack

For the purpose of installing report definitions and report packs, a report definition is a single .rdl file whereas a report pack includes all files for a complex report or series of reports.

Installing or updating a Report Definition

1. On the Web client computer click the **Upload Report Template (Admin)** icon in the **Report Library** to open the **Install Report Definition** dialog.

2. Click **Browse** to navigate to the location of the .rdl file. Select the file, click **Open**, and then
    click **Install**.

    The uploaded report is located in ...\ Power Monitoring Expert\web\ReportDepot\ION
    Reports\ION Single Reports

3. Click **New** to open the **New Report From Definition** dialog.

4. Click the new report name in the list, then click **Next**.

5. Click **New Folder** to open the **Create New Folder** dialog.

6. Type a folder name and click **OK** to create the folder containing the new report in the **Report
    Library**.

Installing or updating a Report Pack

1. To make a report pack available for upload from the server hosting the Web Applications com-
    ponent, copy it into the ReportPacks directory (located in ...\Power Monitoring Exper-
    t\web\ReportPacks\).

2. On the client computer click the **Upload Report Pack (Admin)** icon in the **Report
    Library** to open the **Report Pack Install** dialog.

3. Select the report pack that you want to install and click **Install**.

    For an existing report definition, a confirmation message indicates that all reports associated
    with the definition are to be updated. Click **OK** to continue.

Creating a new report definition from a default report definition

You can create a new report definition by copying one of the existing default report definitions.

To create a new report definition:

1. Click the **New** icon in the **Report Library** to open the **New Report from Definition** dialog
    listing all of the report definitions.

2. Select the report definition you want to base your new report on, and click **Next**.

3. Type a name for the new report in the **Name** field. Select a location for the new report definition
    from the navigation tree, or click **New Folder** to create a new folder.

4. Click **Save** to add the new report definition to the list of reports in the **Report Library**.

Creating custom report definitions

You can use Microsoft Business Intelligence Development Studio to create custom report
definitions.

Custom report definitions should only be created by users with a thorough understanding of the
database access layer, Microsoft Business Intelligence Development Studio and Reporting
Services.

Contact your local Schneider Electric representative if you require specialized report definitions.

Report ownership and access

Access to a report is user-specific and can be assigned by a user with supervisor-level access or by the owner of the report.

The owner of the report is the user who saved the report (see Saving a report).

To allow other users access to a saved report:

Click the **Manage** icon to open the **Manage Reports** dialog. Select **Share** to display the list of reports and a list of available users and groups.

Click a report in the list, then click a user name in the **Available Users & Groups** list and use the right-arrow to move your selection to the **Share List**.

Click **Apply** to save your selection and continue working in the **Manage Reports** dialog, or click **Close** to save your selection and close the dialog.

Report input parameters

The report input area opens when you select a report in the **Report Library**. You must specify the necessary input parameters before you can generate the report. For saved reports, some or all of the input parameters may already be specified.

After you generate a report, you can display or change the input parameters you specified for it by clicking **show inputs** in the top-right corner of the report display area. To return to the generated report without changing any of the input parameters, click **hide inputs**. If you change any of the input parameters, click **Generate Report** to regenerate the report.

Inputs for default report definitions

The following information describes the inputs for the default report definitions. The available inputs vary by report definition listed in the **Reports Library**.

Aggregation Interval

This input determines the period of time over which data is accumulated for presentation in the report, such as day, week, and so on. From the dropdown list, select the aggregation interval that you want to use. If a custom report includes a predefined aggregation interval, contact the owner to adjust the interval for your use.

Align Day of Week for Months

When the Aggregation Interval is **Month**, selecting **Yes** includes the data in the table by day of week (Sun, Mon, Tues, and so on). Selecting **No** includes the data in the table by the day of the month (1, 2, 3, and so on). The default is **Yes**.

Auto-scale Y-Axis

Select whether or not to scale the chart normally. Selecting **No** sets the starting point of the Y-axis at zero. The default is **Yes**.

Chart Type

Select one of the available chart types from the dropdown list to graphically display the data that you specified for the report.

Comments

Use this field to add comments that will appear at the bottom of the generated report.

Custom Units Label

Enter any text to be used as the measurement label for instances when normalization is used , for example, **kWh/Person**. The default is **kWh**.

Degree Days Pivot Point

The Degree Days Pivot Point is the point where either heating or cooling is required to keep the temperature within the designated degree range.

Deviation Type

Enter a percentage or specific value to specify the the type of deviation to show in the report.

Display Zero Days

Select whether or not to show days where data is logged but the values are all zero. Note that days with no logged values at all are still included in the report. The default is **No**.

Driver Data Quantity

Click **Select Measurement**. Navigate to and select a measurement, and then click **OK**.

Driver Data Source

Click **Select Source**, and then choose from the dropdown list a Grouping: None, Group Name, Site, or Device Type. Navigate to and select a source, and then click **OK**.

Email Recipients (comma separated)

A comma-separated list of email addresses to which to email the transformed XML.

Email XML Export

Select **Yes** to email the transformed XML output ('XML Export File') to the addresses specified in **Email Recipients**.

End Hour

Select the end hour to display when filtering the data by the time of day.

The time range in the list is in 24-hour format in descending order.

Energy Measurement Label

Type a label to describe the measurements selected in **Energy Measurements**.

Use this label to aggregate disparate units into a common measurement unit.

For example, for Gas (GJ) and Electricity (kWh) values you could define the Energy Label as 'BTU'.

Energy Measurements

1. Click **Select Load Measurement** to open the Load Measurement Selector dialog.

2. Under **Load**, click **Select Source** to open the Source Selector.

   The **Source Selector** dialog provides options to show **Devices** or **Views**.

- Use the **Devices** option to select the devices you want to include in the report.

  From the **Grouping** list, select the way in which you want to display the sources (for example by device type or by group name). Click **+** and **-** to expand and collapse items in the navigation tree. Click the check box beside a device (or group of devices) to select it. Click **Select All** or **Select None** in the top-right corner to select or clear all the check boxes.

- Use the **Views** option to select a hierarchy view (a tree of relationships) or virtual meters.

  The hierarchy views and virtual meters are configured in the Hierarchy Manager component. (See the *Hierarchy Manager Help* for further information about hierarchies, virtual meters, and views.) Click **+** and **-** to expand and collapse items in the tree. Click the check box beside any hierarchy item in the tree or any virtual meter to select it.

- Click **OK** after making your selections.

3. Under **Measurements**:

    a. Click **Select Measurement** to open the Measurement Selector.

    b. Choose the measurement you want to use for the energy comparison and click **OK**.

    c. If required, enter a **Multiplier** value.

      The multiplier lets you add multiple measurements. For example, a multiplier can be used to get gas and electricity energy currencies onto the same unit footings, so they can be added together.

4. (Optional) Use **Normalization** to normalize measurement values.

    a. In **Label**, enter the normalization label value.

    b. In **Value**, enter the value that you want to normalize.

      For example: To normalize energy usage per square foot of a building, enter Energy per Square Foot in the **Label** value, and the square footage of the building in the **Value** field.

5. Click **OK**.

Evaluation Limits

Click **Configure** to configure the EN50160 parameters used in the report. Default values are provided based on the EN50160 standard.

Click the links in the dialog box to access configuration options for various measurements included in the report:

- **Basic Configuration**: Type the maximum percentage of intervals in an observation period where the component does not meet the EN50160 N1 and N2 requirements before the component is considered non-compliant.

- **Supply Voltage Dips**: Type the maximum percentage of intervals in an observation period that the RMS value can drop below 90% of the nominal voltage for each duration and depth presented in the dialog box before the component is considered non-compliant.

- **Short and Long Interruptions**: Type the maximum percentage of intervals in an observation period that the RMS value can be less than 1% of the nominal voltage for the given duration before the component is considered non-compliant.

- **Temporary Overvoltages**: Type the maximum percentage of intervals in an observation period that the RMS value can exceed the nominal voltage by each magnitude for each duration presented in the dialog box before the component is considered non-compliant.

> **NOTE**: The EN50160 standard defines the observation period for the above components as one week.

Event Location

Select how you want to identify the location of the events that are included in the generated report. The available selections are **Internal and External**, **Internal** only, or **External** only.

Event Priority

Select the priority of alarms and events that you want to include in the report. The options include high, medium, and low priority alarms and events.

Exclude Days with Rollover

Exclude days that contain rollover from the report.

Exclude Incomplete Days

Exclude days that are incomplete from the report.

Exclude Incomplete Weeks

Exclude weeks that are incomplete from the report.

Exclude Values Over

Enter a value to indicate the point at which values over this number are not plotted in the chart. The default value is **No Exclusions**.

Exclude Values Under

Enter a value to indicate the point at which values over this number are not plotted in the chart. The default value is **No Exclusions**.

Flicker Baseline - High

Type the Flicker Baseline High value if the default is not appropriate for your needs.

Flicker Baseline - Low

Type the Flicker Baseline Low value if the default is not appropriate for your needs.

Frequency Baseline [%]

Type the Frequency Baseline value if the default is not appropriate for your needs.

Frequency Nominal [Hz]

Type the nominal frequency of the system (for example, 60).

Gauge Scale Override

Choose a specific value for all of the gauge scales to use in custom situations, such as when normalizing data. This input is optional.

Group

Keep the default option **All Groups** or select a specific power quality group from the list.

The groups are defined in the Power Quality Group configuration file, which is implemented during Power Quality Advisor commissioning.

Grouped By

Select from the dropdown list to determine how the circuit breaker aging and electrical wear analysis results are sorted.

High Target Line (Left and Right Axis)

Enter a value for the target line representing the target for the high end of your energy use. This target line is red in the generated report. The default is **No Target Line**.

High Target Name (Left and Right Axis)

Enter a name to identify the high target line in the chart legend for the left and right axis, respectively. The defaults are **Left Axis High Target** and **Right Axis High Target**, respectively.

Highlight End

Select the end hour to stop the highlighting of the line in the chart.

The time range in the list is in 24-hour format in descending order.

Highlight Start

Select the start hour to begin the highlighting of the line in the chart.

The time range in the list is in 24-hour format in ascending order.

Incident Interval

Select how you want to identify the location of the events that are included in the generated report. The available selections are **Internal and External**, **Internal** only, or **External** only.

Include Aggregation Chart

Select whether or not to include a bar chart in the generated report showing a summary of the measurement you chose for the selected sources. The default is **Yes**.

Include 100% Area Chart

Select whether or not to include an area chart showing the data results stacked to a 100% level. The default is **Yes**.

Include Area Chart

Select whether or not to include an area chart in the generated report to view the contribution of data over a given period of time.

Include Average Harmonic Charts

Select whether or not to include charts showing the average values related to harmonic compliance. The default is **Yes**.

Include Breakers with Minor Aging and Wear

Select **Yes** or **No**. Selecting **Yes** allows all of the breakers to appear in the report regardless of the current electrical aging and electrical wear levels. Selecting **No** allows only breakers with moderate or critical electrical aging and electrical wear to appear.

Include Chart

Select whether or not to include the chart in the generated report. The default is **Yes**.

Include Column Chart

Select whether or not to include a column chart in the generated report to compare the data represented in the chart. The default is **Yes**.

Include Data Table

Select whether or not to show the data table in the generated report. The default is **No**.

Include Data Tables in the Detail Section

Select whether or not to show data table for power quality events in the generated report. The default is **No**.

Include Data Warnings

Click **Yes** to include data warnings in the report. If there are none, the section is not included. Click **No** to exclude this section. The default is **Yes**.

Include Duplicates

Select whether or not to show duplicate data in the generated report. The default is **No**.

Duplicate data collection is disabled in Power Monitoring Expert by default. To enable duplicate data collection, the parameter **SaveDuplicates** must be set to 1 in the dbo.Registry table in the ION_Data database. Contact your SQL Server administrator if you require this change. Also note that enabling duplicate data collection results in more rapid growth in the size of the ION_Data database.

NOTICE

LOSS OF DATA
- Do not make unauthorized changes in the software product's databases.
- Only personnel with advanced knowledge of the software product's databases should make database parameter changes.

Failure to follow these instructions can result in irreversible database changes.

Include EN50160 Configuration Parameters

Select whether or not to include the configuration inputs entered in the **Configure Evaluation Limits** dialog in the generated report.

Include Events And Disturbances in the Detail Section

Click the field to open the Events and Disturbances dialog. By default, all items under **Events** and **Disturbances** are selected, as well as **Power Factor**.

Clear the checkboxes for any specific items that you do not want to include in the generated report. If you clear or select **Events** or **Disturbances**, the checkboxes for all of the items included in that category are cleared or selected.

Include Gauges

Select whether or not to include the gauges in the generated report. The default is **Yes**.

Include Harmonic Detail Charts

Select whether or not to include charts showing a second level of harmonic compliance detail for the generated report. The default is **No**.

Include Interval Column Trend

Select whether or not to include a bar chart in the generated report showing the measurement you chose for the sources for each hour in the 24-hour period for the specified days. The default is **Yes**.

Include Interval Line Trend

Select whether or not to include a line chart in the generated report showing the measurement you chose for the sources for each hour in the 24-hour period for the specified days . The default is **No**.

Include Line Chart

Select whether or not to include a line chart in the generated report to display the data trend over a given time period. The default is **Yes**.

Include Non Impacting Events

Select **Yes** if you want to include events in the **Power Quality Events — Details** section of the generated report that are classified as having no impact on the power quality of your site. By default, power quality events with no impact are excluded from the generated report.

Include Pie Chart

Select whether or not to include a pie chart in the generated report to show a numerical proportion of the results. The default is **Yes**.

Include Report Parameters Summary

Select whether or not to include report parameters in the generated report. The default is **Yes**.

Include Stacked Aggregation Chart

Select whether or not to include a stacked chart in the generated report showing the measurement you chose for the selected sources. The default is **No**.

Include Stacked Column Chart

Select whether or not to include a stacked column chart in the generated report to display the proportions for the data represented in the chart. The default is **Yes**.

Include Tables

Select whether or not to include the tables in the generated report. The default is **Yes**.

Include THD/TDD Charts

Select whether or not to include charts showing the total harmonic distortion (THD) of the voltage waveform, and the total demand distortion (TDD) of the current waveform, in the generated report. The default is **Yes**.

Include Two Specific Periods Only

Select whether or not to include only the first and last period of data in the selected date range. The default is **No**.

Include Undetermined Incidents

This option represents the number of events that cannot be classified as **External** or **Internal**. Select Yes or No to include or exclude the data for these events from the generated report.

Keep True Totals

Select **Yes** if you want the totals in the report to be unaffected by the filtering. If you want the totals in the report to be based on line item and tenant filter, select **No**.

Line Item Filter

Anything entered in the **Line Item Filter** parameter (comma separated) excludes rows from the Item column. For example, to exclude the **On Peak Usage** line item, enter **On Peak Usage** in the Line Item Filter. To filter both On and Off Peak usage, enter **Peak Usage**.

Load Measurement

Select the source you want.

Lock Chart Scales at Zero

Select whether or not to force the y-axis to start at zero rather than scaling the chart normally. The default is **Yes**.

Low Target Line (Left and Right Axis)

Enter a value for the target line representing the target for the low end of your energy use. This target line is yellow in the generated report. The default is **No Target Line**.

Low Target Name (Left and Right Axis)

Enter a name to identify the low target line in the chart legend for the left and right axis, respectively. The defaults are **Left Axis Low Target** and **Right Axis Low Target**, respectively.

Lower Target Line

Enter a value for the target line representing the target for the low end of the energy use. The lower target is a yellow line in the report. Columns in charts that are on lower target line, or between the lower target line and the upper target line, are outlined in yellow. The default value is **0**.

Max Authorized Deviation

Enter a value by which deviation is allowed for the report.

Measurement Label

Input the label to be used to describe the measurements selected in Load Measurement.

Measurements (Reports other than Load Profile)

Use this input to select the measurements you want to include in the report.

Click **Select Measurement** to display the **Measurement Selector** dialog. Click **+** and **-** to expand and collapse items in the navigation tree. For reports where you can select multiple measurements, click the check box beside a measurement (or group of measurements) to select it. For reports where you can only select a single measurement, click the measurement name to select it.

After selecting the measurements, click **OK**.

Measurements (with Smart Mode)

Smart Mode is enabled in the **Measurement Selector** when you select the **Views** radio button in the **Source Selector**, which then lets you select a hierarchy view or a virtual meter for your source parameter.

When you open the **Measurement Selector**, Smart Mode lists general measurement names by default. A **Detailed Mode** option is also available for the measurements.

Smart Mode provides a general measurement name for you to select. The measurement is based on a subset derived from all of the available measurements in the particular measurement category. The underlying operation selects an applicable measurement for each device to produce equivalent results for reporting purposes.

The following image illustrates how measurements in Smart Mode are determined and applied from the priority list of measurements. The priority list contains measurements that usually provide equivalent results for the measurement selected in Smart Mode.

For example, for each device included in a hierarchy view or in a virtual meter, the report starts with the Real Energy measurement in the priority list. If data for that measurement exists, then it is used in the report. If data does not exist for the Real Energy measurement, then the report goes to the Real Energy Total measurement in the list. If data exists for that measurement, then it is used. The report continues to progress through the priority list to select a measurement that pertains to each device associated with a hierarchy view or a virtual meter.
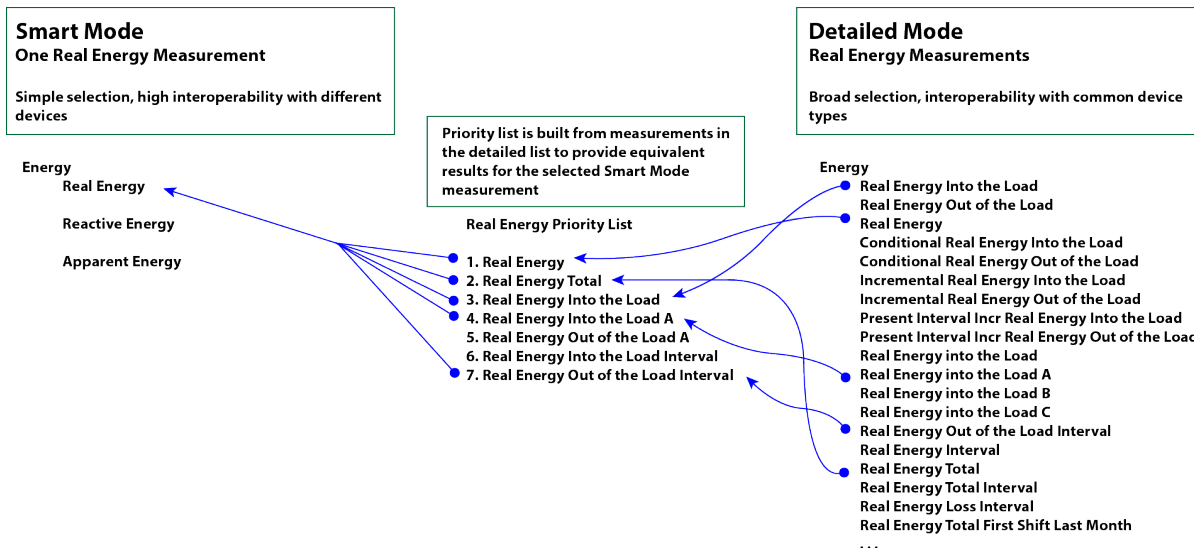
You can select **Detailed** to change to the detailed selection mode. This mode allows you to select from a full list of measurements.

Smart Mode	Detailed Mode

☐ Detailed
 	
 ⊞ ☐ Demand
 	
 ⊟ ☐ Energy
      ☐ Apparent Energy (kVAh)
      ☐ Reactive Energy (kVArh)
      ☐ Real Energy (kWh)
	☑ Detailed
	
	 ⊞ ☐ Demand
	
	 ⊟ ☐ Energy
	      ☐ Apparent Energy Total (kVAh)
	      ☐ Conditional Real Energy Into the Load
	      ☐ Conditional Real Energy Out of the Load
	      ☐ Incremental Real Energy Into the Load
	      ☐ Incremental Real Energy Out of the Load
	      ☐ Reactive Energy (kVArh)
	      ☐ Reactive Energy Into the Load (kVArh)
	      ☐ Reactive Energy Into the Load Interval (kVArh)
	      ☐ Reactive Energy Out of the Load (kVArh)
	      ☐ Reactive Energy Out of the Load Interval (kVArh)

The **Measurement Selector** provides a full list of measurements when you select the **Devices** radio button in the **Source Selector**.

Click **+** and **-** to expand and collapse items in the navigation tree. For reports where you can select multiple measurements, click the check box beside a measurement (or group of measurements) to select it. For reports where you can only select a single measurement, click the measurement name to select it.

After selecting the measurements, click **OK**.

Measurements (Load Profile Report)

This input determines whether the report is calculated using demand or power measurements. Select either **Demand** or **Power** from the dropdown list.

Measurement Interval

Select the observation period (that is, the measurement interval) of **2 Hour**, **10 Minute**, or **3 Second** to use for the IEC61000-4-30 report.

Measurement Target Line

Select a measurement to use with the source identified in **Source Target Line** to establish ON and OFF peak target lines in the generated report.

Model Data Quantity

Click **Select Measurement**. Navigate to and select a measurement, and then click **OK**.

Model Data Source

Click **Select Source**, and then choose from the dropdown list a Grouping: None, Group Name, Site, or Device Type. Navigate to and select a source, and then click **OK**.

Multiplier

Enter a value to use as a muliplier in normalizing the raw data in the report. The default is **1**.

n % Crossing

Type a value for the duration percentage. This value indicates where to place a cross on the plotted line identifying where that percentage value occurs.

Notes

Any notes appear at the bottom of the report page.

Overwrite XML Export

Selecting **Yes** overwrites an existing file if it exists, and selecting **No** appends the new data to an existing file.

Power Factor Target

The target power factor for the site. The default target is 92, which you can change to match you site power factor target.

The target power factor is configured in the Power Factor Impact Rate.xml file when the Power Quality Advisor module is commissioned. This rate file is included in the Billing Module, which is subject to licensing. Contact your Schneider Electric representative for further information.

Priority

Select the priority of alarms and events that you want to include in the report. The options include high, medium, and low priority alarms and events.

Rate

Select the appropriate rate structure to apply to this report. The rate determines how the cost for each tenant is calculated.

Rates

Use this input to set up parameters for energy cost reporting. Click **Configure Rates** to open the **Energy Rates** dialog.

- Click **Energy and Demand** to configure basic rate parameters for the report.
    - In the **Select Measurements** section, click the check box beside a measurement to include it in the report.
    - In the **Select Billing Calculation** section, select **Flat Rate** or select **TOU Schedule**. If you select **TOU Schedule**, select a time of use (TOU) schedule from the dropdown list (see the *Time of Use Editor* topic in the online help for Management Console Tools for information on configuring a time of use schedule).
    - In the **Set Rates** section, enter the rates for the selected measurements.

- In the **Set Demand Calculation** section, select the calculation method used to determine demand: **Independent** (peak demand is calculated independently for each source) or **Coincident** (the demand measurements of the sources are correlated with the peak demand of the main meter). If you select **Coincident** for the calculation method, click **Main Meter** to select the source to which you want to correlate the demand measurements.

- Click **WAGES** to include WAGES (Water, Air, Gas, Electricity, Steam) measurements in the report. Click the +/- buttons to add or remove measurements. Enter a name for the measurement then click **Select Source** and **Select Measurement** to select a source and measurement. Enter a rate for the measurement in the **Rate** field.

- Click **Additional Fees** to add additional rate information to the report. Enter a name in the **Rate Name** field and rate information in the **Amount** field.

Regression Type

Choose from the dropdown list Single-Line or Broken-Line.

Reporting Period

Use this input to select the timeframe for the data you want to view in the report.

Select the reporting period from the dropdown list. The timeframe options in the timeframe dropdown are relative to the date the report is run. To run a report that starts and ends in the past, select the fixed date option. Type a start and end date in the date boxes or click the arrows beside the dates to display a pop-up calendar and select a date. Type a time in the time boxes or click the up and down arrows beside the time to adjust the hours or minutes up or down.

Select whether you want to view timestamps in either Server Local Time or UTC (Universal Coordinated Time).

Reporting Period (with additional options)

The Reporting Period input contains the following fields and dropdown lists:

- **Timezone**: Select whether you want to view timestamps in either Server Local Time or UTC (Universal Coordinated Time).

- **Aggregation Period**: Select the block of time for which you want to compare data (i.e., day, week).

- **Comparison Type**: Select what period of data you want to compare the selected Aggregation Period to (i.e., today vs. the same day from the previous month or current month vs. the same month from the previous year). The options vary depending on the Aggregation Period selected.

- **Number of Comparisons**: Enter the number of periods you want to compare.

- **Aggregation Interval**: This input appears when you select **Month** for the **Aggregation Period**. Select how you want data grouped for the report: by date (Day of Month) or the day of the week.

- **Selected Dates**: This box displays the dates of the data that will appear in the report based on the options selected.

For example, to compare the selected measurements for the same day of the month over the last 12 months, set **Aggregation Period** to **Day**, set **Comparison Type** to **Today vs. Same Weekday From Previous Month**, and enter **12** in the **Number of Comparisons** field.

Rollup

Select from the dropdown list the period of time for which the report data is rolled up.

Save Billing Totals

Save Billing Totals calculates the billing total per Tenant (Source) and writes the value back into the database so that it can be used in other applications, such as Dashboards, Diagrams or Reports.

Scale Measurement

Select the measurement as the base against which to scale the main dataset. This input is optional.

Scale Source

Select the source as the base against which to scale the main dataset. This input is optional.

Select

Select **Top** (highest result) or **Bottom** (lowest result) to indicate the order of the gauges in the generated report. The default is **Top**.

Select Group

Select the group for which the report is intended.

Select Number

Enter the number of sources that you want to include in the ranking. The default is **99**.

Select Time of Use

Select a TOU schedule to use for the report. Existing time of use schedules are referenced in the list. If you have not created a time of use schedule, the field indicates that no time of use schedule is available.

Shifts

Use the +/- buttons to add additional shifts. For each shift, enter a name and set the start and end time for the shift.

To configure a shift that spans midnight, use two shifts with the same name. For example, to set up a day shift and a night shift, add three shifts: **Day** from 8:00 AM to 8:00 PM, **Night** from 8:00 PM to 12:00 AM, and **Night** from 12:00 AM to 8:00 AM.

Show Report Parameters Summary

Select whether or not to show report parameters in the generated report. The default is **Yes**.

Show Start & End Periods Only

Select to show or not in the report the start and end periods. The default is **No**.

Signaling Voltage 1, 2 and 3 Eval Limit [%]

Type the maximum percentage of intervals in an observation period in which the mean value of the signaling voltage can exceed the curve defined in the EN50160 standard before that mains signaling voltage is considered non-compliant.

Source Label
Select an option for the format of the label describing the source. The options are **Source Name**, **Source Description**, and **Combined Name/Description**.

Sources

Use this input to select the devices you want to include in the report.

Click **Select Sources** to open the **Source Selector** dialog. From the **Grouping** list, select the way in which you want to display the sources (for example by device type, by group name, and so on). Click **+** and **-** to expand and collapse items in the navigation tree. Click the check box beside a device (or group of devices) to select it. Click **Select All** or **Select None** in the top-right corner to select or clear all the check boxes.

After selecting the devices, click **OK**.

Sources (Devices and Views)

The **Source Selector** dialog provides options to show **Devices** or **Views**:

Use the **Devices** option to select the devices you want to include in the report.

From the **Grouping** list, select the way in which you want to display the sources (for example by device type or by group name). Click **+** and **-** to expand and collapse items in the navigation tree. Click the check box beside a device (or group of devices) to select it. Click **Select All** or **Select None** in the top-right corner to select or clear all the check boxes.

After selecting the devices, click **OK**.

Use the **Views** option to select a hierarchy view (a tree of relationships) or virtual meters. The hierarchy views and virtual meters are configured in the Hierarchy Manager component. (See the *Hierarchy Manager Help* for further information about hierarchies, virtual meters, and views.) Click **+** and **-** to expand and collapse items in the tree. Click the check box beside any hierarchy item in the tree or any virtual meter to select it.

Click **OK** after making your selections.

Source Target Line

Select a source to use with the measurement selected in **Measurement Target Line** to establish ON and OFF peak target lines in the generated report.

Start Hour

Select the start hour to display when filtering the data by the time of day.

The time range in the list is in 24-hour format in ascending order.

Stylesheet (optional)

Select the appropriate css stylesheet file to provide additional formatting to the billing data.

Target Line
 Enter a value for the target line in relation to the measurement you selected. The default value is not

to include a target line.

Target Line (kW)

Enter a value for the location of the target line in the kW chart in the generated report. The default is **0**.

Target Line (kVAr)

Enter a value for the location of the target line in the kVAr chart in the generated report. The default is **0**.

Target Line (kVA)

Enter a value for the location of the target line in the kVA chart in the generated report. The default is **0**.

Tenant

Selecting the tenant by device allows you to choose a source from a list of devices connected to Power Monitoring Expert. Selecting by view allows you to choose sources based on the views configured in a hierarchy, such as a floor in a physical layout or a circuit in an electrical view, or by virtual meters defined in Hierarchy Manager. For additional information regarding hierarchies and virtual meters, see *Hierarchy Manager help*.

Tenant Filter

Anything entered in the **Tenant Filter** parameter (comma separated) that matches any Billing meta data line items (Tenant column) is excluded. An '*' can be entered to include everything.

THD Baseline [%]

Type the **THD Baseline** value if the default percentage is not appropriate for your needs.

Title

Type a title for the report in the text box.

Unbalance Baseline [%]

Type the **Unbalance Baseline** value if the default percentage is not appropriate for your needs.

Upper Target Line

Enter a value for the target line representing the target for the high end of your energy use. The upper target is a red line in the report. Columns in charts that on or above the upper target line are outlined in red. The default value is **0**.

Voltage Baseline [%]

Type the **Voltage Baseline** value if the default percentage is not appropriate for your needs.

Voltage Nominal [V]

Type the nominal voltage of the system (for example, 120).

X Axis Calculation Method

Choose from the dropdown list one of the following methods: Cooling Degree Days, Heating Degree Days, Average, Sum, or Delta.

XML Export File

Select the name of the final XML output file, for example, MonthlyBillingDataMain.xml.

XML Transform File

Select the appropriate XML transform file that controls the format of the billing data export.

Y Axis Calculation Method

Choose from the dropdown list one of the following methods: Average, Sum, or Delta.

Inputs for segment report definitions

The following information describes the inputs for the segment report definitions. The available inputs vary by report definition listed in the **Reports Library**.

Aggregation Type

The aggregation data that will be displayed: Average, Maximum, or Minimum.

ATS Summary

1. Click **ATS Summary**.

2. Click **Include ATS Summary** to include the Automatic Transfer Switch Summary section in the report. The remaining options in the screen are enabled. Alternatively, clear this check box to exclude the Automatic Transfer Switch Summary section from the report.

3. Click **Include Pass/Fail Indicator** to include both the Required Transfer Time and Test Status results. The Test Status shows the pass/fail grade. Alternatively, clear this check box to exclude the results from the report.

4. **Lead ATS** - Select the ATS device that you want to use as the lead ATS in reporting the transfer time. The lead ATS is the ATS upon which the pass/fail grade is based.

   You can choose the `Auto Select Lead ATS` option if you want the system to automatically select the lead ATS. The ATS device that is first to enter test mode becomes the lead ATS. If multiple ATS devices enter test mode at the same time, or if none of the devices enter test mode, the system selects the ATS based on alphabetical order.

5. Click **OK** to save your changes and return to the report template.

Cumulative Degradation Threshold

Enter the value that represents the maximum total voltage difference between the reference waveform and the evaluated waveforms. For example, if the waveform is off by 1.0 on each point from the reference, the total degradation is 10. If the threshold value is 8, then the degradation exceeds the threshold.

Customers

Click **Select Customers**. Select the customers that you want to include in the report from the list. Click **Select All** to select all the customers from the list. Click **None** to deselect all the customers. Click **OK**.

Data Center Energy Measurement

Click **Select Measurement** to choose the measurement for interval energy usage for the entire data center. This will typically be a 15-minute interval value.

Data Center Power Measurement

Click **Select Measurement** to choose the measurement for instantaneous power consumption for the entire data center.

Data Center Source

Click **Select Source** to choose a single source to represent the entire data center facility.

Display Billing ID

Click **Yes** to show an alphanumeric billing ID for a tenant which can be used by third party billing engine.

Energy Cost per kWh

Enter the appropriate value for the blended cost of energy. This value is used in the calculations for the cost of losses in the report. Only numeric values with up to two decimal places will be used in the report.

The currency symbol used to display the cost values is set in the Management Console application:

1. Open Management Console.

2. Click **Tools** > **Reporting Configuration** > **Reporting Configuration Manager**.

3. Click **Regional Formatting**.

4. Set the region and the currency symbol and then click **OK**.

EPSS Group

Select the transfer switches and other equipment group for the report. The list shows the groups that you defined in the configuration utility. When you select a group from the list, the field to the right shows the devices included in the group.

Events Summary

1. Click **Events Summary**.

2. Click **Include Events Summary** to include the Events Summary section in the report. The remaining options in the screen are enabled. Alternatively, clear this check box to exclude the Events Summary section from the report.

3. Click **Include Generator Events** to include generator events in the report. Alternatively, clear this check box to exclude generator events from the report.

4. Click **Include ATS Events** to include ATS events in the report. Alternatively, clear this check box to exclude ATS events from the report.

5. Click **OK** to save your changes and return to the report template.

Exclude Sources

(Optional) Define the sources to exclude from the report:

a. In the **Sources Included** area, select sources to exclude and then click **>** to move those sources to the **Sources Excluded** area.

b. To move all of the sources into the **Sources Excluded** area, click **>>**.

c. Click **OK** to save the sources and return to the report template.

The devices in the group appear in the Sources section of the generated report. Excluded devices appear as grayed-out entries.

Facility Location

(Optional) Type the data center facility location.

Facility Name

Type the data center facility name.

Generator Summary

1. Click **Generator Summary**.

2. Click **Include Generator Summary** to include the Generator Summary section in the report. The remaining options in the screen are enabled. Alternatively, clear this check box to exclude the Generator Summary section from the report.

3. Click **Include Pass/Fail Indicator** to include both the pass/fail grade and the test method used to evaluate each generator. The pass/fail grade is based on both the run duration and the minimum specified percentage of the prime nameplate rating. Alternatively, clear this check box to exclude the pass/fail grade and the test method from the report.

4. Select the **Electric Data** options to specify the electrical data in the report:

   − **Include Chart**: Select this check box to include a generator chart showing kW Load, kVA Load, and the threshold for the minimum acceptable power load based on the specified load percentage for the run duration.

   − **Include Avg., Min, Max Table**: Select this check box to include a table showing minimum, average, and maximum electrical readings for the longest continuous load at (or above) the specified load percentage. The electrical readings measured are: kW, kVA, Ia, Ib, Ic, In, Vab, Van, Vbc, Vbn, Vca, Vcn.

   − **Include Details**: Select this check box to include a table showing the generator electrical details. The data is organized by time intervals and displays the readings for kW, kVA, load (the percentage of maximum load identified on the generator nameplate), Power Factor (PF), I avg, VLL avg, VLN avg, and Frequency.

5. Select the **Engine Temperature Data** options to specify the engine temperature data in the report:

   − **Include Chart**: Select this check box to include a chart showing the engine temperature for the run duration, and a horizontal line identifying the minimum temperature required for the run duration.

   − **Include Avg, Min, Max Table**: Select this check box to include a table showing Minimum, Average, and Maximum engine temperature readings for the longest continuous engine temperature equal to or above the minimum acceptable engine temperature.

   − **Include Details**: Select this check box to include a table showing the Longest Continuous ET (Engine Temperature) time period, the Minimum ET, Required Run Duration (Min), and Actual Run Duration.

> **NOTE**: The configuration tool does not convert the engine temperature values from one temperature type to another.

6. Select the **Exhaust Gas Temperature Data** options to specify the exhaust gas temperature data in the report:

   - **Include Chart**: Select this check box to include a chart showing the exhaust gas temperature for the run duration, and a horizontal line identifying the minimum temperature required for the run duration.

   - **Include Avg, Min, Max Table**: Select this check box to include a table showing Minimum, Average, and Maximum exhaust gas temperature readings for the longest continuous engine temperature equal to or above the minimum acceptable exhaust temperature.

   - **Include Details**: Select this check box to include a table showing the Longest Continuous EGT (Exhaust Gas Temperature) time period, the Minimum EGT, Required Run Duration (Min), and Actual Run Duration.

7. Under **Engine Data**, click **Include Details** to include engine details in the report. Details for each generator include:

   - Generator name

   - Generator start and stop times by date

   - A label to indicate whether the data was collected automatically or manually.

   - A table of measurements; such as battery voltage and coolant temperature. Each measurement includes a timestamp and the corresponding values.

8. Click **OK** to save your changes and return to the report template.

Include Activity Details

Click **Yes** to include a generator details section in the report. Click **No** to exclude this section.

Include Data Tables

Click **Yes** to include a section for capacity data in the report. Click **No** to exclude capacity data.

Include Event History

Click **Yes** to include event log data in the report. Click **No** to exclude it.

IT Equipment Energy Measurement

Click **Select Measurement** to choose the measurement for interval energy usage for all the IT equipment used. This will typically be a 15-minute interval value.

IT Equipment Power Measurement

Click **Select Measurement** to choose the measurement for instantaneous power consumption for all the IT equipment used.

IT Equipment Source

Click **Select Source** to choose the single source that represents all the IT equipment operated in the data center facility.

Logged Measurement

1. Click **Select Source** to open the Source Selector dialog.

2. Select the source and then click **OK**.

3. Click **Select Measurement** to open the Measurement Selector dialog.

4. Select the instantaneous measurement (power, power factor, current, THD, etc.) and then click **OK**.

Manual

Click **Manual** to select the runs according to a date range and run reason, and then do the following:

1. Select the **Reporting Period** date range for th eruns to include in the report.

2. Select the Run Reason for the runs to include in the report.

   If you select `Most recent run` and define excluded sources, the exclusions are ignored when you generate the report.

The devices in the group will appear in the Sources section of the report. Devices that you excluded from the report will be gray-shaded.

Operating Room

The hospital rooms whose panels you want to include in the report.

Primary Sort

Select the primary sort column from the drop-down list. Your choice sets the primary sort column for the report; customer, rack or circuit. Depending on how your hierarchy is configured, the sort might contain customer and circuit only.

PUE Category

Select a number for the report category. The value appears as a label below the report title. The label will be "Category *n*", where "*n*" represents the number selected.

Category 1 is measured at the Uninterrupted Power Supply (UPS). Category 2 is measured at the Power Distribution Units (PDU). Category 0 and 3 are not included in the PUE Report.

Recovery Value Multiplier

Enter the multiplier value from 0.01 to 1.00. This value is used by the algorithm to determine the waveform recovery voltage value and time (relative to the waveform voltage drop) for both reference and comparison waveforms.

Report Data Generators

Select one or more system configurations to use in the report:

1. Click **Select Generator Systems**. The Selector screen appears with the UPS systems you set up in the Generator Power Configuration Utility.

2. Select one or more generator systems.

3. Click **OK**.

Report Data UPS

Select one or more system configurations to use in the report:

1. Click **Select UPS Systems**. The Selector screen appears with the UPS systems you set up in the UPS Power Configuration Utility.

2. Select one or more UPS systems.

3. Click **OK**.

Select Date Range

Select this if you want to select the runs according to a date range and run reason, and then do the following:

1. Select the **Reporting Period** date range for the runs to include in the report.

2. Select the **Run Reason** for the runs to include in the report.

The devices in the group will appear in the Sources section of the report. Devices that you excluded from the report will be gray-shaded.

Select Generator Starts

Select the option to specify the start records. When you click **Select Reference Starts** you can choose the specific start records by generator and date. For example, you can use this option to compare yesterday's Gen 1 start voltage signature to the Gen 1 start voltage signature from six months prior.

Select Waveforms

1. Click **Select Source**, choose a source from the list, and then click **OK**.

2. Click **Select Reference Waveform**, select the check box next to one or more comparison waveforms, and then click **OK**.

3. Define the comparison waveforms using one of the following:
   - Click **Enter the number of comparison waveforms** and enter a value in the field.

     By default, the report looks for the five most recent waveforms that have been captured for the source to be compared against the reference waveform. Use this mode for reports that are to be delivered using a report subscription.

   - Click **Select the comparison waveforms**, then click **Select Comparison Waveforms**, select the check box next to the waveforms you choose, and then click **OK**.

     This mode allows you to select specific comparison waveforms. It is not recommended to use this mode with a report subscription.

Show Daily Rollups

Click **Yes** to include the daily peak load for the equipment. If you click **No**, the report shows the peak load for the entire reporting period.

Show Data Warnings

Click **Yes** to include data warnings in the report. Click **No** to exclude them.

Show Min/Max Timestamps

Click **Yes** to include the report period timestamps. Click **No** to exclude them.

Show Errors

Click **Yes** to include error messages in the report, or **No** to exclude them.

State Labels

Use state labels to add labels to equipment state codes. For example: value = 1, state = maintenance.

> **NOTE**: State labels are related to the state measurements in the Power Monitoring Expert database.

For each state that you want to include in the report:

1. In the **Value** field, enter a state value.

2. In the **State** field, enter the value's corresponding state. For example, if the state with a value of 3 = medium, enter 'medium'.

3. (Optional) Click **+** and then repeat steps 1 and 2 to add a state label for each state that you want to include in the report.

4. (Optional) Click **-** to delete a state label.

> **NOTE**: If you do not add state labels for every source state, and you set **Include Data Warnings** to Yes, the generated report will include error warnings indicating that equipment states are unaccounted for in the State Label mapping.

State Measurement

Use state measurement to select a piece of equipment with state values.

1. Click **Select Source** to open the **Source Selector** dialog.

2. Select the source and then click **OK**.

3. Click **Select Measurement** to open the **Measurement Selector** dialog.

4. Select the equipment state measurement and then click **OK**.

   Depending on how your state measurements are configured, the equipment state measurement could be grouped under "Miscellaneous" or "Custom".

State Measurements

Use state measurement to select equipment with state values.

1. Click **Select Source** to open the **Source Selector** dialog.

2. Select the source and then click **OK**.

3. Click **Select Measurement** to open the **Measurement Selector** dialog.

4. Select the equipment state measurement and then click **OK**.

   Depending on how your state measurements are configured, the equipment state measurement could be grouped under "Miscellaneous" or "Custom".

5. (Optional) Click **+** and add another source measurement pair.

Threshold

Enter the percentage for the maximum test run load capacity. This is the percentage of the equipment electrical rating (in amps) entered in the **Transfer Switches** tab or the **Equipment** tab.

Threshold Hours

Enter the maximum number of hours the generators should run in non-emergency use. Enter a value that is in compliance with local authority requirements. For example, in the United States, the Environmental Protection Agency (EPA) requires that generators can run no more than 100 hours in non-emergency use.

Timestamp Coincidence

Select either **with Customer Peak** or **with Data Center Peak**.

Use Run History

Click **Use Run History** to select the most recent run, or select other specific runs that are stored in history, and then do the following:

1. Click **Refresh Run History** to populate the Runs list with the latest run records.

2. In the Runs list, select `Most recent run` or the specific run record. The date and reason for the run appear below the dropdown list.

    If you select `Most recent run` and define excluded sources, the exclusions are ignored when you generate the report.

UPS Group

Add the UPS groups that you wan tto include in the report.

Voltage Threshold

Enter voltage threshold value. This input represents a nominal voltage that is used by the report to display a voltage threshold area below the reference waveform voltage drop.

Waveform Drop Percentage

Enter a percentage value from from 1.00 to 100.00. This input value represents the percentage that is used by the algorithm to detect the first voltage drop in the reference and comparison waveforms.

Waveform Drop Sample Size

Enter a value for this sample size. This input represents the number of waveform samples (or points) - from 2 to a total number of waveform samples (for example, 1024, 2048, and so forth) - used by the algorithm in the detection of the waveform voltage drop for the reference and comparison waveforms.

Billing and Allocation

NOTE: The availability of these reports is subject to licensing. Contact your Schneider Electric representative for more information.

The **Billing and Allocation** folder in the **Report Library** includes reports to help you manage your facility's tenant billing information:

⚠ CAUTION

INACCURATE DATA RESULTS

- Do not incorrectly configure the system; this can lead to inaccurate reports and/or data results.

- Do not rely solely on reports or data results to determine if the system is 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 injury or equipment damage.

Billing Report

NOTE: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

Use the Billing Report report definition to create an itemized energy charge back report for a particular source (e.g., tenant) over a given date range (e.g., month). The Billing Report definition uses measurements specified in a rate file. The rate file is configurable and supports many different rate structures.

Use the Billing Report to:

- Produce accurate tenant energy bills

- Allocate costs to departments or processes

- Verify utility bills.

Prerequisites

The report inputs use the meter hierarchy or the virtual meter as the sources. A hierarchy is required for the Billing report to run.

Report inputs:

- Title

- Tenant

- Reporting Period

- Rate

Billing Summary Report

> **NOTE**: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

The Billing Summary Report summarizes multiple bills in one report and allows run-time customization of exactly what is calculated and displayed in the report. With the Billing Summary Report, you can generate a bill for multiple tenants (sources) with a common rate file. The report also allows you to filter the tenants and the line items so you can show only the information you want in the report.

Prerequisites

The Tenant (Source) input uses Hierarchy Views (for example, Physical Layout, Virtual Meter). A hierarchy is required for the Billing Summary report to run.

Report inputs:

- Title
- Tenant
- Reporting Period
- Rate
- Tenant Filter
- Line Item Filter
- Save Billing Totals
- Keep True Totals

Energy by IT Customer Report

> **NOTE**: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

The Energy by IT Customer Report provides information regarding energy usage for customers within the data center facility. The Energy by IT Customer Report report definition also allows you to export billing system information (for CSV export) and troubleshoot the billing system.

Prerequisites

- Devices must be installed, configured, and communicating correctly.
- The hierarchy must be set up and configured correctly.
- The Managed Circuits feature is run each time a device configuration change is made.

For more information on configuring your system to use this report see *StruxureWare Power Monitoring Expert – Data Center Edition Commissioning Guide*, or contact your Schneider Electric representative.

Report inputs

- Title
- Facility Name

- [Facility Location](#)

- [Customers](#)

- [Reporting Period](#)

- [Report Type](#)

- [Timestamp Coincidence](#)

- [Display Billing ID](#)

- [Show Errors](#)

Multiple Billing Report

NOTE: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

The Multiple Billing report extends the existing Billing Report to allow the selection of multiple tenants. By allowing multiple tenant selection you can create, save and schedule one report for all tenants on a common rate. To do so, select your tenants and then configure the rest of the report parameters as usual.

The output of this report is a single file, so if you choose to save or subscribe to a PDF file, then each bill appears on its own page for easy printing, etc.

Report inputs

- [Title](#)

- [Tenant](#)

- [Reporting Period](#)

- [Rate](#)

- [Save Billing Totals](#)

- [Notes](#)

Multiple Billing Export Report

NOTE: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

The Multiple Billing Export Report exports tenant billing data automatically in a customized format for easy integration with third-party billing systems. The report generates a bill for the tenants for the specified date range with the selected billing rate.

Use the Multiple Billing report definition to generate billing data for multiple tenants (sources) with a common rate file. The report also allows you to filter the tenants and the line items so you can show only the information you wish in the report.

Prerequisites

The Tenant (Source) input uses Hierarchy Views (for example, Physical Layout, Virtual Meter). A hierarchy is required for the Multiple Billing Export report to run.

Report inputs:

- [Title](#)

- [Tenant](#)

- [Reporting Period](#)

- [Rate](#)

- [XML Transform File](#)

- [XML Export File](#)

- [Overwrite XML Export](#)

- [Stylesheet (optional)](#)

- [Save Billing Totals](#)

- [Email XML Export](#)

- [Email Recipients (comma separated)](#)

Energy Analysis

NOTE: The availability of these reports is subject to licensing. Contact your Schneider Electric representative for more information.

The **Energy Analysis** folder in the **Report Library** includes reports to help you identify energy usage factors in your facility and implement strategies to reduce facility energy consumption.

- ["Duration Curve Report" on page 105](#)

- ["Energy Regression Analysis Report" on page 105](#)

- ["Energy Usage Per State Report" on page 106](#)

- ["Multi Equipment Operation Report" on page 106](#)

- ["Power Usage Per State Report" on page 107](#)

- ["Single Equipment Operation Report" on page 107](#)

⚠ CAUTION

INACCURATE DATA RESULTS

- Do not incorrectly configure the system; this can lead to inaccurate reports and/or data results.

- Do not rely solely on reports or data results to determine if the system is functioning correctly or meeting all applicable standards and compliances.

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Duration Curve Report

> **NOTE**: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

Use the Duration Curve report definition to determine how to reduce peak demand and to lower base load, to validate performance characteristics and to perform capacity modeling tasks.

Report inputs

- Title
- Single Source – see Sources (Devices and Views)
- Measurement – see Measurements (with Smart Mode)
- n % Crossing
- Exclude Values Over
- Exclude Values Under
- Reporting Period
- Target Line
- Source Label
- Auto-scale Y-Axis
- Include Data Table
- Include Data Warnings.

Energy Regression Analysis Report

> **NOTE**: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

This report shows modeled energy analysis data with respect to a particular data driver, such as weather.

Report inputs

- Title
- Driver Data Source
- Driver Data Quantity
- Model Data Source
- Model Data Quantity
- Reporting Period
- Regression Type
- X Axis Calculation Method
- Degree Days Pivot Point
- Y Axis Calculation Method

- [Aggregation Interval](#)

- [Exclude Incomplete Weeks](#)

- [Exclude Incomplete Days](#)

- [Exclude Days with Rollover](#)

- [Deviation Type](#)

- [Max Authorized Deviation](#)

- [Include Data Warnings](#)

- [Include Report Parameters Summary](#)

Energy Usage Per State Report

NOTE: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

Use the Energy Usage Per State report definition to create a report that displays equipment energy usage data grouped by equipment state.

Prerequisites

The equipment state values must be available in the Power Monitoring Expert historical database.

Report inputs

- [Title](#)

- [Energy Measurements](#)

- [Energy Measurement Label](#)

- [State Measurement](#)

- [State Labels](#)

- [Reporting Period](#)

- [Aggregation Interval](#)

- [Auto-scale Y-Axis](#)

- [Include Data Table](#)

- [Include Data Warnings](#)

Multi Equipment Operation Report

NOTE: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

Use the Multi Equipment Operation report definition to create a report that displays the time multiple pieces of equipment spend in each state, the number of activations, and the average activation duration.

Prerequisites

The equipment state values must be available in the Power Monitoring Expert historical database.

Report inputs (update)

- Title

- State Measurements

- State Labels

- Reporting Period

- Aggregation Interval

- Auto-scale Y-Axis

- Include Data Table

- Include Data Warnings

Power Usage Per State Report

NOTE: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

Use the Power Usage Per State report definition to create a report that displays equipment power data grouped by equipment state.

Prerequisites

The equipment state values must be available in the Power Monitoring Expert historical database.

Report inputs (update)

- Title

- Logged Measurement

- State Measurement

- State Labels

- Reporting Period

- Aggregation Interval

- Aggregation Type

- Show Min/Max Timestamps

- Auto-scale Y-Axis

- Include Data Table

- Include Data Warnings

Single Equipment Operation Report

NOTE: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

Use the Single Equipment Operation report definition to create a report that displays the time a single piece of equipment spends in each state, the number of activations, and the average activation duration.

Prerequisites

The equipment state values must be available in the Power Monitoring Expert historical database.

Report inputs (update)

- Title
- State Measurement
- State Labels
- Reporting Period
- Aggregation Interval
- Auto-scale Y-Axis
- Include Data Table
- Include Data Warnings

Energy Management

The **Energy Management** folder in the **Report Library** includes the following reports:

- "Calendar Trend Month Report" on page 108
- "Calendar Trend Week Report" on page 109
- "Consumption Ranking Report" on page 109
- "Energy Comparison Report" on page 110
- "Energy Cost Report" on page 111
- "Energy Period over Period Report" on page 111
- "Energy Usage by Shift Report" on page 112
- "Energy Usage by TOU Report" on page 112
- "Energy Usage Report" on page 113
- "Load Profile Report" on page 114

⚠ CAUTION

INACCURATE DATA RESULTS

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Calendar Trend Month Report

Use the Calendar Trend Month report definition to provide a monthly interpretation of out-of-hours usage, benchmark performance targets, and to identify peak and off-peak usage patterns.

Report inputs

- Title

- Single Source – see Sources (Devices and Views)

- Measurement – see Measurements (with Smart Mode)

- Start Hour

- End Hour

- Highlight Start

- Highlight End

- Reporting Period

- Target Line

- Source Label

- Display Zero Days

- Auto-scale Y-Axis

- Include Data Warnings.

Calendar Trend Week Report

Use the Calendar Trend Week report definition to provide a weekly interpretation of out-of-hours usage, benchmark performance targets, and to identify peak and off-peak usage patterns.

Report inputs

- Title

- Single Source – see Sources (Devices and Views)

- Measurement – see Measurements (with Smart Mode)

- Start Hour

- End Hour

- Highlight Start

- Highlight End

- Reporting Period

- Target Line

- Source Label

- Auto-scale Y-Axis

- Include Data Warnings.

Consumption Ranking Report

Use the Consumption Ranking report definition to visualize the relative ranking of energy consumption for one or more source/measurement pairs. You can normalize the consumption data to facilitate your comparison. This report is intended to assist you in building energy awareness through relative visualization.

Report inputs

- [Title](#)
- Select Sources – see [Sources (Devices and Views)](#)
- Select Measurement – see [Measurements (with Smart Mode)](#)
- [Multiplier](#)
- [Scale Source](#)
- [Scale Measurement](#)
- [Reporting Period](#)
- [Gauge Scale Override](#)
- [Select](#)
- [Select Number](#)
- [Custom Units Label](#)
- [Source Label](#)
- [Include Chart](#)
- [Include Gauges](#)
- [Include Tables](#)
- [Auto-scale Y-Axis](#)
- [Include Data Warnings](#).

Energy Comparison Report

The Energy Comparison report allows the comparison of different load types on a particular source. The comparison is instrumental when you perform building benchmarking. This report converts energy to a common energy unit and can normalize energy by criteria, such as area. Results are shown with either bar or pie charts.

Report inputs

- [Title](#)
- [Energy Measurements](#)
- [Energy Measurement Label](#)
- [Rollup](#)
- [Reporting Period](#)
- [Show Start & End Periods Only](#)
- [Chart Type](#)
- [Auto-scale Y-Axis](#)
- [Include Data Table](#)
- [Include Data Warnings](#)

Energy Cost Report

Use the Energy Cost report definition to create a report on energy consumption and peak demand levels over a period of time, categorized by time of use. The Energy Cost report definition uses energy and demand measurements.

With an Energy Cost Report, you can:

- Use a time of use (TOU) schedule that you define using the Time of Use Editor (see the "Time of Use Editor" topic in the Management Console Tools section of the online *Power Monitoring Expert Help*).

  or

- You can set a flat rate on the **Energy and Demand** tab of the **Energy Rates** dialog. See Rates for more information.

> **NOTE**: This report is intended to be used for positive power flow applications only (where kW and kVAR are both positive). Use with bi-directional flow gives incorrect results.

Report inputs

- Title
- Sources
- Rates
- Reporting Period
- Include Data Warnings
- Source Label

Energy Period over Period Report

Use the Energy Period over Period report definition to create a report that compares a measurement from multiple devices over specified time periods (for example, this week vs. the same week from the previous month).

Report inputs

- Title
- Sources
- Measurement
- Report Period (with additional options)
- Auto-scale Y-Axis
- Include Aggregation Chart
- Include Stacked Aggregation Chart
- Include Interval Line Trend
- Include Interval Column Trend
- Source Label

- Include Data Table
- Include Data Warnings.

Energy Usage by Shift Report

Use the Energy Usage by Shift report definition to create a report that compares a measurement from multiple devices for specified time periods (or shifts). This allows you to compare energy usage between shifts (for example, 6:00-1:00 vs. 1:00 to 8:00).

NOTE: If you generate a report before the end of a shift that spans midnight, a portion of the usage data for that shift is included under the equivalent shift for the current day.

For example, assume:

1. You specify three 8-hour shifts:

   Shift 1: 7:00 AM to 3:00 PM

   Shift 2: 3:00 PM to 11:00 PM

   Shift 3: 11:00 PM to 7:00 AM

   Note that Shift 3 spans midnight (12:00 a.m.).

2. Your **Reporting Period** is **Last 7 Days**.

3. You generate the report on day 8 before 7:00 a.m., that is, before the end of Shift 3 for day 7.

The generated report will include usage data under Shift 3 for day 8. However, this shift 3 usage data is that portion of shift 3 from the previous day (day 7) that occurred after midnight.

In addition, this allocation of usage data to the next day for shift 3 from midnight to 7:00 a.m. occurs for all of the days throughout the reporting period.

To avoid this situation, select specific days (**Fixed Date**) for the **Reporting Period**.

Report inputs

- Title
- Sources
- Measurement
- Reporting Period
- Aggregation Interval
- Shifts
- Include Data Warnings
- Source Label

Energy Usage by TOU Report

Use the Energy Usage by TOU report definition to generate a report showing energy usage associated with time of use schedule periods.

Report inputs

- [Title](#)
- [Sources (Devices and Views)](#)
- [Measurements (with Smart Mode)](#)
- [Reporting Period](#)
- [Aggregation Interval](#)
- [Select Time of Use](#)
- [Lower Target Line](#)
- [Upper Target Line](#)
- [Source Target Line](#)
- [Measurement Target Line](#)
- [Chart Type](#)
- [Source Label](#)
- [Include Data Tables](#)
- [Auto-scale Y-Axis](#)
- [Include Data Warnings](#).

Energy Usage Report

Use the Energy Usage report definition to create a report highlighting discrepancies and providing a visual interpretation of the data using the available display options.

Report inputs

- [Title](#)
- [Sources (Devices and Views)](#)
- [Measurements (with Smart Mode)](#)
- [Reporting Period](#)
- [Aggregation Interval](#)
- [Start Hour](#)
- [End Hour](#)
- [Lower Target Line](#)
- [Upper Target Line](#)
- [Source Label](#)
- [Include Column Chart](#)
- [Include Stacked Column Chart](#)
- [Include Line Chart](#)
- [Include Pie Chart](#)

- Include 100% Area Chart

- Include Area Chart

- Include Gauges

- Auto-scale Y-Axis

- Include Data Warnings.

Load Profile Report

Use the Load Profile report definition to create a graphical representation of demand or load levels over a period of time. The profile shows peak loads as points on the graph where peak electricity demand is high. A load trend report can be used to analyze the electrical loads at the time of maximum demand. This information can show opportunities for developing strategies to improve energy management.

The Load Profile report definition uses similar measurements as the Energy Cost report definition but does not use a TOU schedule.

Report inputs

- Title

- Sources

- Measurements

- Reporting Period

- Include Data Table

- Auto-scale Y-Axis

- Target Line (kW)

- Target Line (kVAr)

- Target Line (kVA)

- Source Label

- Include Data Warnings

Equipment Performance

NOTE: The availability of these reports is subject to licensing. Contact your Schneider Electric representative for more information.

The **Equipment Performance** folder in the **Report Library** includes reports to help you monitor generator and breaker performance, and determine how equipment is performing:

- "Circuit Breaker Aging Report" on page 115

- "EPSS Test Report" on page 115

- "Equipment Capacity Report" on page 116

⚠ CAUTION

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Circuit Breaker Aging Report

NOTE: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

Circuit Breaker Aging allows you to monitor and report on the status of circuit breaker aging and wear of the devices in your electrical system.

Prerequisites

- Devices must be installed, configured, and communicating correctly.
- Your circuit breakers are defined using the Breaker Aging Configuration Tool.

For more information on configuring your system to use this report see your system commissioning guide, or contact your Schneider Electric representative.

Report inputs:

- Title
- Select Group
- Grouped By
- Include Breakers with Minor Aging and Wear
- Include Data Warnings

Circuit Breaker Aging and Wear Maintenance

Before you perform any maintenance for aging or wear on your circuit breakers, refer to the Power Monitoring Expert community on the Schneider Electric Exchange Community. for the latest instructions on circuit breaker maintenance actions in Power Monitoring Expert 8.1 Healthcare Edition.

EPSS Test Report

NOTE: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

The Emergency Power Supply System (EPSS) Test Report shows the EPSS load supporting capabilities for the automatic transfer switches (ATS), generators, and equipment. You can use this report to evaluate the overall condition of the EPSS. For example, the report shows the transfer time of the lead ATS and indicates whether the transfer time passes or does not pass the test requirements.

Prerequisites

Your generator and ATS systems are defined using the Generator Performance Configuration Tool with EPSS Test.

For more information on configuring your system to use this report see *StruxureWare Power Monitoring Expert – Healthcare Edition Commissioning Guide*, or contact your Schneider Electric representative.

Report inputs:

- Title
- Company Name
- Technician Name
- Report Group
- Exclude Sources
- Use Run History
- Manual
- ATS Summary
- Events Summary
- Generator Summary
- Comments
- Include Data Warnings

Equipment Capacity Report

NOTE: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

The Equipment Capacity Report shows the peak load provided by an Automatic Transfer Switch (ATS) or other equipment during a time period and compares the peak load to the rated capacity. The report can show a summary of all entities in a group or daily information for each ATS or equipment. The report includes visual graphs of the load and capacity. If the equipment exceeds the capacity threshold the summary bar is displayed red, not green.

Prerequisites

Your generator system is configured using the Generator Performance Configuration Tool. If your solution includes the EPSS Test Module, use the Generator Performance Configuration Tool with EPSS Test.

For more information on configuring your system to use this report see *StruxureWare Power Monitoring Expert – Healthcare Edition Commissioning Guide*, or contact your Schneider Electric representative.

Report inputs:

- Title
- EPSS Group
- Exclude Sources
- Reporting Period
- Threshold
- Show Daily Rollups
- Include Data Table
- Include Data Warnings

General

The **General** folder in the **Report Library** includes the following reports:

- "100 ms Report" on page 117
- "Data Export - Extended" on page 118
- "Data Export - Standard" on page 118
- "Event History Report" on page 119
- "System Configuration Report" on page 119
- "Tabular Report" on page 119

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100 ms Report

Use the 100 ms report definition to create a report of selected 100 ms measurements from PowerLogic™ Circuit Monitors (for example, CM3000, CM4000, CM4250, and CM4000T).

The report displays timestamped values for each 100 ms measurement selected.

Report inputs

- [Title](#)
- [Sources](#)
- [Measurements](#)
- [Reporting Period](#)
- [Include Data Warnings](#)
- [Source Label](#)

Data Export - Extended

Use the Data Export - Extended report definition to create a CSV file containing the data for the selected sources and measurements. When the CSV file is generated, you are prompted to save the file in a location of your choice.

The data is organized in columns labeled **Timestamp UTC**, **Timestamp**, **Value**, **Source**, **Measurement**, and **Unit**. This organization facilitates the creation of an Excel pivot table for analyzing the data in the file.

The data is listed for each source and measurement by date and in the specified time segments for the data.

Report inputs

- [Title](#)
- [Sources (Devices and Views)](#)
- [Measurements (with Smart Mode)](#)
- [Reporting Period](#)
- [Include Duplicates](#)

Data Export - Standard

Use the Data Export - Standard report definition to create a CSV file containing the data for the selected sources and measurements. When the CSV file is generated, you are prompted to save the file in a location of your choice.

The Data Export - Standard report exports more data to the CSV file because of the way it is organized. For example, where it can export 600 source measurements for 11 months, the Data Export - Extended report can export 80 source measurements for 10 months.

The data is organized by column, with column A labeled **Timestamp**. The remaining columns are labeled with the source name and measurement. The data is listed by date and in the specified time segments for the data.

Report inputs

- [Title](#)
- [Sources (Devices and Views)](#)
- [Measurements (with Smart Mode)](#)

- Reporting Period
- Include Duplicates

Event History Report

Use the Event History report definition to create a report of events or alarms that have occurred in the system. It includes the following information for each event: timestamp; source name; event description; and event priority.

If no event has occurred that matches the inputs entered when generating the report, no data is returned.

Report inputs

- Title
- Sources
- Reporting Period
- Include Data Warnings
- Priority
- Source Label

System Configuration Report

Use the System Configuration report definition to create a report containing details about devices in your network, including: device names and types; communications information (such as, IP address, unit ID, protocol) for devices; sites to which devices belong; status of sites (offline or online); and descriptions of the devices in the system (if a description was entered in Management Console).

This report is useful to Network Administrators when checking network performance and for planning network growth.

Report inputs

- Title
- Include Data Warnings.

Tabular Report

Use the Tabular report definition to create a report of data in a tabular format. You can create a report with multiple measurements from multiple sources. You can also select the option to include duplicate data in the report. This data can then be exported for use in another program, such as Microsoft Excel. If you want to only export your data to an Excel file, use the Data Export - Extended report or the Data Export - Standard report.

> **NOTE**: The Tabular Report is limited to 30 source-measurement pairs. Multiple reports are required if the number of source-measurement pairs exceeds 30. Alternatively, consider using the Data Export - Standard report or the Data Export Extended report to generate a CSV file containing the data for the selected sources and measurements.

The generated report contains the following information: source; measurement; timestamp; and values.

Report inputs

- Title
- Sources (Devices and Views)
- Measurements (with Smart Mode)
- Reporting Period
- Source Label
- Include Duplicates
- Include Data Warnings

Generator Performance

NOTE: The availability of these reports is subject to licensing. Contact your Schneider Electric representative for more information.

The **Generator Performance** folder in the **Report Library** includes reports to help you monitor and analyze generator performance:

- "Generator Activity Report" on page 121
- "Generator Battery Health Export" on page 121
- "Generator Battery Health Report" on page 122
- "Generator Capacity Report" on page 122
- "Generator Load Summary Report" on page 123
- "Generator Test Report" on page 124

NOTE: Emergency Power Supply System (EPSS) is a North American term used in the healthcare segment. "EPSS Group" refers to the "Groups" defined in the Generator Performance Configuration Utility.

⚠ CAUTION

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Generator Activity Report

> **NOTE**: The availability of this module is subject to licensing. Contact your Schneider Electric representative for more information.

The Generator Activity Report shows the test run hours and other test run data for each generator in the selected group.

Prerequisites

Your generator system is configured using the Generator Performance Configuration Tool. If your solution includes the EPSS Test Module, use the Generator Performance Configuration Tool with EPSS Test.

For more information on configuring your system to use this report see your system commissioning guide, or contact your Schneider Electric representative.

Report inputs:

- Title
- EPSS Group
- Exclude Sources
- Reporting Period
- Threshold
- Show Daily Rollups
- Include Activity Details
- Include Data Warnings

Generator Battery Health Export

> **NOTE**: The availability of this module is subject to licensing. Contact your Schneider Electric representative for more information.

Generator Battery Health Export is based on the same data as the "Generator Battery Health Report" on page 122 report. The export version provides the raw data in CSV file format. The export file can be imported by other systems, such as Energy Operation.

Prerequisites

Your generator system is configured using the Generator Performance Configuration Tool. If your solution includes the EPSS Test Module, use the Generator Performance Configuration Tool with EPSS Test.

For more information on configuring your system to use this report see your system commissioning guide, or contact your Schneider Electric representative.

Report inputs:

- Title
- Select EPSS Group
- Exclude Sources

- Select Generator Starts

- Cumulative Degradation Threshold

Generator Battery Health Report

NOTE: The availability of this module is subject to licensing. Contact your Schneider Electric representative for more information.

The Generator Battery Health Report shows the captured waveform image of the generator voltage when the generator starts.

The waveform image includes a reference waveform that shows the initial voltage signature when the batteries were first installed and tested. By capturing the voltage waveform when the batteries are in a known good condition, subsequent waveforms can be compared to it to identify changes. In the Generator Battery Health Report, you can compare waveform images to see the changes over time. Adverse changes in the waveform indicate a degradation of battery condition.

Prerequisites

Your generator system is configured using the Generator Performance Configuration Tool. If your solution includes the EPSS Test Module, use the Generator Performance Configuration Tool with EPSS Test.

For more information on configuring your system to use this report see your system commissioning guide, or contact your Schneider Electric representative.

Report inputs:

- Title

- Select EPSS Group

- Exclude Sources

- Select Generator Starts

- Include Data Warnings

- Cumulative Degradation Threshold

Generator Capacity Report

NOTE: The availability of this module is subject to licensing. Contact your Schneider Electric representative for more information.

The Generator Capacity Report helps verify that the generators can adequately support the loads required during an emergency. The report compares the loads the generators and equipment must carry with the available generator capacity.

Prerequisites

Your generator system must be defined using the Generator Performance Configuration Tool. If your solution includes the EPSS Test Module, use or the Generator Performance Configuration Tool with EPSS Test.

For more information on configuring your system to use this report see *StruxureWare Power Monitoring Expert – Healthcare Edition Commissioning Guide*, or contact your Schneider Electric representative.

Report inputs:

- Title
- EPSS Group
- Exclude Sources
- Reporting Period
- Aggregation Period
- Include Data Table
- Include Data Warnings

Generator Load Summary Report

> **NOTE**: The availability of this module is subject to licensing. Contact your Schneider Electric representative for more information.

The Generator Load Summary Report provides a summary graph of electrical data during a generator run. The report includes a load curve, minimum-maximum-average load summary, and other electrical details.

> **NOTE**: This report is only included with the system if the EPSS Test Module is **NOT** installed.

Prerequisites

Your generator system is configured using the Generator Performance Configuration Tool. If your solution includes the EPSS Test Module, use the Generator Performance Configuration Tool with EPSS Test.

For more information on configuring your system to use this report see your system commissioning guide, or contact your Schneider Electric representative.

Report inputs:

- Title
- Select EPSS Group
- Exclude Sources
- Use Run History
- Select Date range
- Reporting Period
- Include Electrical Details
- Include Data Warnings

Generator Test Report

> **NOTE**: The availability of this module is subject to licensing. Contact your Schneider Electric representative for more information.

The Generator Test Report shows the run details and overall status for generators and transfer switches in the group. For example, the report shows the transfer time of the lead ATS and indicates whether the transfer time passes or does not pass the test requirements.

Prerequisites

Your generator system is defined using the Generator Performance Configuration Tool.

For more information on configuring your system to use this report see your system commissioning guide, or contact your Schneider Electric representative.

Report inputs:

- Title
- Company Name
- Technician Name
- Report Group
- Exclude Sources
- Use Run History
- Manual
- ATS Summary
- Events Summary
- Generator Summary
- Comments
- Include Data Warnings

Power Capacity

> **NOTE**: The availability of these reports is subject to licensing. Contact your Schneider Electric representative for more information.

The **Power Capacity** folder in the **Report Library** includes reports to help you monitor the power capacity of generators, Uninterrupted Power Supply (UPS) systems, and branch circuits in a data center facility:

- "Branch Circuit Power Report" on page 125
- "Generator Power Report" on page 126
- "UPS Power Report" on page 126

⚠ CAUTION

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Branch Circuit Power Report

NOTE: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

The Branch Circuit Power Report describes the average and maximum loading for branch circuits within the data center facility, as well as the percentage load compared to the breaker size.

Use the Branch Circuit Power Report for:

- Proactive capacity management
- Incident management
- Customer expansion planning
- Service Level Agreement (SLA) management.

Prerequisites

- Devices must be installed, configured, and communicating correctly.
- The hierarchy must be set up and configured correctly.
- The Managed Circuits feature is run each time a device configuration change is made.

If any of these prerequisites tasks are not performed correctly, your reports will provide inaccurate information.

For more information on configuring your system to use this report see *StruxureWare Power Monitoring Expert – Data Center Edition Commissioning Guide*, or contact your Schneider Electric representative.

Report inputs:

- Title
- Facility Name
- Facility Location
- Customers
- Reporting Period

- Primary Sort
- Show Errors

Generator Power Report

> **NOTE**: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

The Generator Power Report provides information regarding the generator backup power system and its ability to handle a utility power outage while still complying with the intended redundancy design.

Prerequisites

Your generator power system is defined using the Generator Power Configuration Utility.

For more information on configuring your system to use this report see *StruxureWare Power Monitoring Expert – Data Center Edition Commissioning Guide*, or contact your Schneider Electric representative.

Report inputs:

- Title
- Facility Name
- Facility Location
- Report Data
- Reporting Period
- Aggregation Data
- Include Data Tables
- Show Data Warnings

UPS Power Report

> **NOTE**: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

The UPS Power Report provides information regarding the UPS backup power system and its ability to handle a utility power outage while still complying with the intended redundancy design. The report is generated after .

Prerequisites

A representation of your backup UPS system is created and configured using the UPS Power Configuration Utility.

For more information on configuring your system to use this report see your system commissioning guide, or contact your Schneider Electric representative.

Report inputs:

- Title
- Facility Name

- [Facility Location](#)

- [Report Data](#)

- [Reporting Period](#)

- [Aggregation Data](#)

- [Include Data Tables](#)

- [Show Data Warnings](#)

Power Efficiency

> **NOTE**: The availability of these reports is subject to licensing. Contact your Schneider Electric representative for more information.

The **Power Efficiency** folder in the **Report Library** includes reports to help you manage monitoring devices that make up the power losses system, and report on branch Power Usage Effectiveness (PUE) and average power consumed for the IT equipment running in a data center facility:

- ["Power Losses Report" on page 127](#)

- ["PUE Summary Report" on page 128](#)

⚠ CAUTION

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- Do not incorrectly configure the system; this can lead to inaccurate reports and/or data results.
- Do not rely solely on reports or data results to determine if the system is 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 injury or equipment damage.

Power Losses Report

> **NOTE**: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

Use the Power Losses Report to provides the breakdown of the cost of various losses throughout a Data Centers power system and to lets you analyze and quantify the cost of inefficiencies due to transformers (MV and LV) and UPS modules.

Prerequisites

Your transformers and UPS modules are configured using the Power Losses Configuration Utility.

Report inputs:

- [Title](#)

- [Facility Name](#)

- [Facility Location](#)

- [Reporting Period](#)

- Energy Cost (per kWh)

- Aggregation Data

- Include Data Tables

- Show Data Warnings

PUE Summary Report

NOTE: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

The Power Usage Effectiveness (PUE) Summary Report is a single-page report that displays PUE and average power consumed for a data center facility, along with average power consumed for the IT equipment running in the facility. Additionally, two graphical trends are displayed in a dashboard that corresponds to the facility PUE values and to the energy consumption of the facility.

Prerequisites

Your transformers and UPS modules are configured using the Power Losses Configuration Utility.

Report inputs:

- Title

- Data Center Source

- Data Center Power Measurement

- Data Center Energy Measurement

- IT Equipment Source

- IT Equipment Power Measurement

- IT Equipment Energy Measurement

- PUE Category

- Report End

- Show Data Warnings

Power Quality

The **Power Quality** folder in the **Report Library** includes the following reports:

⚠ CAUTION

INACCURATE DATA RESULTS

- Do not incorrectly configure the system; this can lead to inaccurate reports and/or data results.
- Do not rely solely on reports or data results to determine if the system is 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 injury or equipment damage.

EN50160:2000 Reports

EN50160:2000 is a set of power quality standards used by certain energy suppliers and energy consumers. There are two default report definitions available: EN50160:2000 and EN50160:2000 Mains Signaling.

The EN50160:2000 report definitions use the following types of data from ION7650 devices: supply voltage dips; temporary overvoltages; supply voltage unbalance; harmonic voltage; interharmonic voltage; frequency and magnitude; flicker; and short- and long-term interruptions.

EN50160:2000

Use the EN50160:2000 report definition to create a report containing comprehensive analysis of all EN50160 2000 compliance data logged by multiple meters. The compliance summary is based on the EN50160 2000 limits for each observation period: each default EN50160 measurement indicates a pass or did not pass on the compliance test with a Y (yes) or N (no) respectively.

Report inputs

- Title
- Sources
- Evaluation Limits
- Reporting Period
- Include EN50160 Configuration Parameters
- Include Data Warnings
- Source Label

EN50160:2000 Mains Signaling

Use the EN50160:2000 Mains Signaling report definition to create a report for signal line frequency statistics for multiple sources, for each observation period.

Report inputs:

- Title
- Sources
- Signaling Voltage
- Reporting Period

- Include Data Warnings

- Source Label

EN50160:2010 Reports

EN50160:2010 is a set of power quality standards, published in 2010, used by certain energy suppliers and energy consumers. There are two default report definitions available: EN50160:2010 and EN50160:2010 Mains Signaling.

The EN50160:2010 report definitions use the following types of data from ION8650 and PM8000 devices: supply voltage dips; temporary overvoltages; supply voltage unbalance; harmonic voltage; interharmonic voltage; frequency and magnitude; flicker; and short- and long-term interruptions.

Prerequisites

The following firmware versions are required:

Device	Firmware version
ION8650	8650A_FAC_V4.2.0.0.1 8650B_FAC_V4.2.0.0.1 8650C_FAC_V4.2.0.0.1
PM8000	8000_FAC-PQ_V1.1.0.0.0 8000_FAC_V1.1.0.0.0

EN50160:2010

Use the EN50160:2010 report definition to create a report containing comprehensive analysis of all EN50160 2010 compliance data logged by multiple meters. The compliance summary is based on the EN50160 2010 limits for each observation period: each default EN50160 measurement indicates a pass or did not pass on the compliance test with a Y (yes) or N (no) respectively.

Report inputs

- Title

- Sources

- Evaluation Limits

- Reporting Period

- Include EN50160 Configuration Parameters

- Include Data Warnings

EN50160:2010 Mains Signaling

Use the EN50160:2010 Mains Signaling report definition to create a report for signal line frequency statistics for multiple sources, for each observation period.

Report inputs:

- Title

- Sources

- Signaling Voltage

- Reporting Period
- Include Data Warnings

Harmonic Compliance Report

Use the Harmonic Compliance report definition to generate a report showing an analysis of the harmonic compliance of selected sources based on the IEEE 519-1992 reference limits. Consult IEEE 519-1992 standards documentation for details about harmonic limits.

Report inputs

- Title
- Sources (Devices and Views)
- Reporting Period
- Comments
- Include THD/TDD Charts
- Include Average Harmonic Charts
- Include Harmonic Detail Charts
- Lock Chart Scales at Zero
- Include Data Warnings

IEC61000-4-30 Report

Use the IEC61000-4-30 report definition to create a report on IEC61000-4-30 compliance information by observation period (a 3 second, 10 minute, or 2 hour measurement interval) for one or more sources.

The IEC61000-4-30 report definition provides the following types of information: voltage profile; THD profile; unbalance profile; flicker profile; frequency profile; and summary table.

Report inputs

- Title
- Sources
- Measurement Interval
- Voltage Nominal [V]
- Frequency Nominal [Hz]
- Voltage Baseline [%]
- THD Baseline [%]
- Frequency Baseline [%]
- Unbalance Baseline [%]
- Flicker Baseline - High
- Flicker Baseline - Low
- Reporting Period

- [Source Label](#)

- [Include Data Warnings](#)

Power Quality Report

Use the Power Quality report definition to create a report that summarizes the number and severity of voltage sags, swells, and transients over a period of time. The finished report also includes a graphical representation of the disturbances plotted on a CBEMA-ITIC curve.

The Power Quality report aggregates historical PQ (Power Quality) data into power quality incidents. An incident is a summary, or aggregated event, which represents a number of individual events (sags, swells, or transients) that occurred across an electrical network in a small window of time. Disturbance refers to a sag, swell, or transient event in the Event Log, while incident refers to a group of (1 or more) disturbances.

Report inputs

- [Title](#)

- [Sources](#)

- [Incident Interval](#)

- [Reporting Period](#)

- [Source Label](#)

- [Include Data Warnings](#)

The generated report displays:

- A summary of incidents, incident interval, and number of disturbances.

- The details of the worst disturbances for each power quality incident in the report.

- Statistics for each power quality incident in the report (for example, first timestamp, duration, and the number of transients, sags and swells within the incident).

From the report, you can view either details for an incident or waveform details.

PQ Incident Detail

To view details of an incident, click the incident in the **First Timestamp** column of the **Statistics** table.

Detailed information about a single power quality incident is displayed, including:

- A CBEMA plot containing the power quality disturbances for the selected incident.

- The timestamps, types, durations, phases and magnitudes of disturbances in the selected incident, with the worst event in the selected incident highlighted (worst event = largest magnitude x duration).

- The power quality settings of the device that registered the disturbance (for example, sag/swell limits, transient threshold, and so on).

To return to the PQ Summary report, use the browser's back button.

PQ Waveform Detail

To view the waveform details of an incident, click the waveform icon for the incident.

The waveform details present all of the waveforms that were recorded for a disturbance. It displays a waveform chart along with an optional table with waveform values.

The following waveform plots and data are displayed, based on the timestamp selected:

- A summary waveform plot, displaying a plot of the V1, V2 and V3 waveforms.
- An individual waveform plot for each of:
  - V1 and I1
  - V2 and I2
  - V3 and I3
- If the source queried has digital input logging enabled over the time interval of the waveforms, a waveform showing the digital input status.
- The timestamp for the time the waveforms were triggered.
- The sampling frequency of the waveforms.

To return to the PQ Summary report, use the report section back button on the report toolbar.

UPS Performance

NOTE: The availability of these reports is subject to licensing. Contact your Schneider Electric representative for more information.

The **UPS Performance** folder in the **Report Library** includes reports to help you monitor the battery health of your UPS devices:

- "UPS Auto Test Report" on page 133
- "UPS Battery Health Report" on page 134

⚠ CAUTION

INACCURATE DATA RESULTS

- Do not incorrectly configure the system; this can lead to inaccurate reports and/or data results.
- Do not rely solely on reports or data results to determine if the system is 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 injury or equipment damage.

UPS Auto Test Report

NOTE: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

Uninterrupted Power Supply (UPS) Auto Test Report lets you monitor the battery health of your MGE 5500 UPS devices.

Prerequisites

- Your MGE Galaxy 5500 UPS system is configured using the UPS Configuration Tool.
- The UPS groups are configured in the VIP.

For more information on configuring your system to use this report see *StruxureWare Power Monitoring Expert – Healthcare Edition Commissioning Guide*, or contact your Schneider Electric representative.

Report inputs

- Title
- UPS Group
- Reporting Period
- Include Event History
- Include Data Warnings

UPS Battery Health Report

> **NOTE**: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

The Uninterrupted Power Supply (UPS) Battery Health Report displays information related to the health of the battery for a UPS device. The UPS devices intended for use with this report are UPS devices that do not have an auto-test capability.

Prerequisites

- ION 7550 / ION 7650 devices are installed, configured, and communicating correctly.
- The UPS Battery Health Framework is configured.

For more information on configuring your system to use this report see *StruxureWare Power Monitoring Expert – Healthcare Edition Commissioning Guide*, or contact your Schneider Electric representative.

Report inputs:

- Title
- Select Waveforms
- Waveform Drop Percentage
- Waveform Drop Sample Size
- Recovery Value Multiplier
- Voltage Threshold
- Include Data Warnings

Usage Trending

The **Usage Trending** folder in the **Report Library** includes the following reports:

⚠ CAUTION

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- Do not rely solely on reports or data results to determine if the system is functioning correctly or meeting all applicable standards and compliances.

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Hourly Usage Report

Use the Hourly Usage report definition to create a tabular report to display usage of various types of quantities (such as consumption of Water, Natural Gas, and so on) per hour for a specific day.

A single report may contain consumption figures for different types of measurements from more than one source.

Report inputs

- Title

- Sources (Devices and Views)

- Measurements (with Smart Mode)

- Reporting Period

- Target Line

- Source Label

- Include Data Table

- Include Chart

- Auto-scale Y-Axis

- Include Data Warnings.

Multi Device Usage Report

Use the Multi Device Usage report definition to view consumption information for multiple devices. View energy usage for a single period, or compare two periods, for example, this month versus last month.

NOTE: The measurements that you select for the devices need to provide equivalent data results. For example:

- Correct:

  Real Energy selected for MeterA

  Real Energy into the Load selected for MeterB

- Incorrect:

  Real Energy selected for MeterA

  Reactive Energy selected for MeterA

The report provides a summary of consumption by one or more sources, an interval usage table, and a pie chart.

Report inputs

- [Title](#)
- [Sources (Devices and Views)](#)
- [Measurements (with Smart Mode)](#)
- [Aggregation Interval](#)
- [Reporting Period](#)
- [Include Two Specific Periods Only](#)
- [Source Label](#)
- [Chart Type](#)
- [Auto-scale Y-Axis](#)
- [Include Data Table](#)
- [Include Data Warnings](#)

Multiple Trend Report

Use the Multiple Trend report definition to create a report showing multiple measurements plotted on separate axes.

Report inputs

- [Title](#)
- Left and Right Axis Sources – see [Sources (Devices and Views)](#)
- Left and Right Axis Measurements – see [Measurements (with Smart Mode)](#)
- [Left Axis High Target Line and Right Axis High Target Line](#)
- [Left Axis High Target Name and Right Axis High Target Name](#)
- [Left Axis Low Target Line and Right Axis Low Target Line](#)
- [Left Axis Low Target Name and Right Axis Low Target Name](#)
- [Reporting Period](#)
- [Chart Type](#)
- [Source Label](#)
- [Include Data Table](#)

- Auto-scale Y-Axis
- Include Data Warnings

Single Device Usage Report

Use the Single Device Usage report definition to view energy information for one device. View energy usage for a single period, or compare two periods, for example, this month versus last month.

The report provides a summary of the various usage periods, an interval usage table, and a graphical comparison of the various usage periods.

Report inputs

- Title
- Single Source – see Sources (Devices and Views)
- Measurements (with Smart Mode)
- Aggregation Interval
- Reporting Period
- Source Label
- Include Two Specific Periods Only
- Align Day of Week for Months
- Auto-scale Y-Axis
- Include Data Warnings

Trend Report

Use the Trend report definition to create a report that displays trend information in a line, column, bar, or pie chart. You select devices and measurements for a selected period of time.

NOTE: The Trend Report is limited to 30 source-measurement pairs. Multiple reports are required if the number of source-measurement pairs exceeds 30.

NOTE: The Trend Report has been upgraded in Power Monitoring Expert 7.2.1 to include two new parameters: **Include Data Table** and **Include Duplicates**. Trend Reports with subscriptions created prior to version 7.2.1 need to be updated and saved with the new parameters.

- Open each saved Trend Report. The new parameters are visible in the display pane.
- Keep or change the default selections for the parameters.
- Save the updated report to overwrite the existing version.

This ensures that subscriptions for Trend Reports continue to function.

Report inputs

- Title
- Sources (Devices and Views)
- Measurements (with Smart Mode)

- Chart Type

- Reporting Period

- Source Label

- Target Line

- Auto-scale Y-Axis

- Include Data Table

- Include Duplicates

- Include Data Warnings.

Power Quality Advisor

NOTE: The availability of this module is subject to licensing. Contact your Schneider Electric representative for more information.

The Power Quality Advisor module consists of:

-
-
-

Power Quality Advisor diagrams

Power Quality Advisor diagrams provide an overview of the power quality of your system. Two sets of Vista diagrams are available; indicator diagrams and equipment diagrams:

- Indicator diagrams present an aggregated and simplified view of historical power quality data.
- Equipment diagrams provide a real-time summary of the operational status of the corrective equipment installed in support of your system.

⚠ CAUTION

INACCURATE DATA RESULTS

- Do not incorrectly configure the system; this can lead to inaccurate reports and/or data results.
- Do not rely solely on reports or data results to determine if the system is 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 injury or equipment damage.

Prerequisites

Before you can use Power Quality Advisor diagrams, the following items need to be completed during the commissioning of the Power Quality Advisor module:

- Deploy the VIP.PQ ADVISOR Framework in the PQ Advisor VIP using Designer.
- Deploy and configure Power Quality Advisor Indicator and Equipment Vista diagrams.
- Configure which devices to include and/or exclude for each type of power quality event and disturbance.

Using the Power Quality Advisor Indicator diagrams

1. Open the Power Quality Advisor diagrams.

   (Depending on the method implemented for you during commissioning, you could open the diagrams by clicking a Grouping Object in Vista that links to the diagrams, or by clicking a tab in the banner in the Web Applications component.)

The landing page provides a high-level summary of power quality items, which are dependent on the configuration of your system for power quality purposes.

You can also click one of the buttons under CORRECTIVE EQUIPMENT STATUS to open the equipment group page for the devices grouped under the equipment type. The default types are Capacitor Banks, Active Harmonic Filters, and UPS. See "Using Power Quality Advisor Equipment diagrams" on page 140 for additional information.

2. Click an event or disturbance to open the details page for that item.

The details page shows the number of times in each time period that the disturbance or event potentially impacts your system, and whether they occurred internally, externally, or are from an undetermined location. It also includes links to data reports for each time period.

3. Click the information icon *i* on the details page to view the values being used to determine the severity of the event or disturbance.

You can also click **Learn More** under RESOURCES to access additional information about the specific Power Quality event or disturbance you are viewing.

4. Click X to return to the details page.

You can also open the Power Quality Advisor setup page from the landing page.

1. Click the cog icon in the top right.

The INITIALIZATION area contains Control Objects for **Initialize/Update Indicators** and **Import Indicator Limit Information**.

- **Initialize/Update Indicators** allows you to manually update all of the fields within the Power Quality Advisor diagrams. Use this if you want to update the fields instead of waiting for automatic updates (15 minutes to 1 hour). You can also use this to initiate an update if it appears that something is not working correctly.

- **Import Indicator Limit Information** allows you to update the Power Quality Advisor diagrams when the limit table in the database has been updated.

The OTHER (OPTIONAL) area is intended for custom controls if required.

2. Click the return arrow to go back to the landing page.

Using Power Quality Advisor Equipment diagrams

1. Open the Power Quality Advisor diagrams.

(Depending on the method implemented for you during commissioning, you could open the diagrams by clicking the Grouping Object in Vista that links to the diagrams, or by clicking a tab in the banner in the Web Applications component.)

2. Click **Equipment** on the left to open the equipment landing page.

3. Click any one of the equipment type buttons to open the equipment type group page.

The equipment type group page contains buttons for the individual devices included in the group. Depending on the configuration of your system for power quality purposes, devices that may require action are identified.

4. Click a button for a device to open the details page for that device.

   To view additional measurements for the device, click the folder icon in the OVERVIEW area on the details page to open the Vista diagram for the device.

About Power Quality Advisor Indicator diagrams

Power Quality Advisor Indicator diagrams are organized into 3 levels – landing page, details page, and information page. Each level provides more detail for the related disturbance or event.

Indicator diagrams landing page

The Indicator diagrams landing page displays a high-level summary of power quality for the events and disturbances identified on the page. The landing page initially opens to the LAST 7 DAYS time period. The other time periods are LAST 24 HOURS, LAST 30 DAYS, and LAST 12 MONTHS.

The group of events and disturbances on the page are color-coded to indicate the state of the specific power quality item. The classifications are defined by the thresholds defined for the power quality item over a set period of time. The color coding indicates how well your system performed from an historical perspective.

- Green indicates that no negative power quality issues have been identified for the specific power quality metric, or that the meters do not provide specific power quality data.

- Yellow indicates that there are some infrequent power quality issues with the system for the specific power quality metric. Although items flagged as yellow are not a priority, you should investigate them for possible future issues.

- Red indicates that there are frequent issues for the specific power quality metric. Items flagged as red should be regarded as a priority for further investigation.

Indicator diagrams details page

The Indicator diagrams details page provides a breakdown by time period of the specific event or disturbance as follows:

- Provides totals for the event or disturbance classified as having no impact or likely impact.

- Includes subtotals of the event or disturbance in terms of external, internal, or undetermined locations.

- Provides a Data Log Viewer object which links to a detailed report in tabular format for each time period.

It also includes a description of the event or disturbance type and its likely impacts.

You can also click **Learn More** under RESOURCES to access additional information about the specific Power Quality event or disturbance you are viewing.

Indicator diagrams information page

The information page indicates the tolerance limits used to determine whether the event or disturbance is flagged with a green, yellow, or red color.

About Power Quality Advisor Equipment diagrams

Power Quality Advisor Equipment diagrams are organized into 3 levels – landing page, group page, and detail page. Each level provides more detail about the power quality equipment in your facility.

Equipment landing page

The landing page displays a real-time summary of the status of equipment organized by types when it opens. You can filter the display to show only the corrective equipment types by clicking **Corrective**. Each button has a color indicator for the overall status of the equipment type, and a count of the number of devices configured for that type.

Equipment group page

When you click one of the equipment type buttons on the landing page, a group page contains buttons for the individual devices grouped under that equipment type. Each equipment button has a color indicator to show its status.

Equipment detail page

When you click a specific equipment button, a detail page for that device shows operation details, device status, and maintenance indicators.

Power Quality Advisor gadgets

The Power Quality Advisor module includes the following gadgets:

- "Power Factor Impact gadget" on page 144
- "Power Factor Impact Trend gadget" on page 145
- "Power Quality Events Breakdown gadget" on page 145
- "Power Quality Events Impact gadget" on page 146
- "Power Quality Events Location gadget" on page 146
- "Power Quality Impact gadget" on page 147
- "Power Quality Impact Trend gadget" on page 147
- "Power Quality Rating gadget" on page 147
- "Power Quality Rating Trend gadget" on page 148

For information about configuring the power quality gadgets, see "Configuring Power Quality Advisor gadgets" on page 142.

Configuring Power Quality Advisor gadgets

The Gadget Setup dialog opens each time you select a Power Quality gadget to add to a dashboard. The dialog leads you through a series of gadget configuration pages.

Note that each page of the Gadget Setup dialog is represented by labeled tabs when you edit the settings for an existing gadget. See "Changing Power Quality gadget settings" on page 144 for more information.

The following table indicates the gadget configuration pages that apply to the gadgets included in the Power Quality Advisor module, where "Y" indicates that the page applies to that gadget, and "-" indicates that the page is not applicable.

Gadget Name	Gadget Configuration Pages			
	General	**Source Selection**	**PQ Group**	**Viewing Period**
Power Factor Impact	Y	Y	-	Y

Gadget Name	Gadget Configuration Pages			
	General	Source Selection	PQ Group	Viewing Period
Power Factor Impact Trend	Y	Y	-	Y
Power Quality Events Breakdown	Y	-	-	Y
Power Quality Events Impact	Y	-	-	Y
Power Quality Events Location	Y	-	-	Y
Power Quality Impact	Y	-	Y	Y
Power Quality Impact Trend	Y	-	Y	Y
Power Quality Rating	Y	-	-	Y
Power Quality Rating Trend	Y	-	-	Y

General configuration options

Complete the options on this page as follows:

1. Optionally, type a title for the gadget.

2. For **Opacity**, you can:

   a. Leave the default option **Use Dashboard Opacity** selected.

      The default opacity setting is controlled in the Dashboard Styling dialog and applies to all gadgets included on the dashboard.

   b. Clear the checkbox for **Use Dashboard Opacity** to enable the settings for the gadget and select one of the available percentages.

   An opacity setting of 100% indicates that the gadget is not transparent – the background color or image is not visible in the gadget. A setting of less than 100% results in the gadget being partially transparent – the background color or image is partially visible in the gadget.

Source Selection configuration options

Complete the option on this page as follows:

1. Click **Select Source** to open the Source Selection dialog.

   The sources listed are dependent on the views and virtual meters you create in Hierarchy Manager.

2. Enter a source name in the **Search Sources** field, or expand the tree to locate the source that you want to use.

3. Click the source name and then click **OK** to add your selection as the source for the gadget.

PQ Group configuration options

Depending on the scope of the data that you want to display in the gadget, select **All Groups** (if there is more than one group in the list), or a specific group in the list.

The group names that are listed in the dialog are defined in the Power Quality Group configuration file, which is configured during Power Quality Advisor commissioning.

Viewing Period configuration options

Complete the options on this page as follows:

1. Select the time range for the data that is to be displayed in the gadget.

2. If aggregation options are available, select one of the available options.

> **NOTE**: For all Power Quality gadgets, except the Trend gadgets, the recommended viewing period is **This Month** (for monitoring current data) or **Last Month** (for monitoring historical data). For the Trend gadget s, the recommended viewing period is **Last 12 Months** with a **By Month** aggregation period.

Changing Power Quality gadget settings

To change the settings for a gadget:

1. Click the menu icon in the gadget.

   The menu contains **Edit**, **Duplicate**, **Copy to**, and **Delete** items.

2. Click **Edit** to open the Gadget Setup dialog.

3. Click each tab to view or change the applicable settings.

4. Click **Save** to update the gadget settings and to close the Gadget Setup dialog.

Power Factor Impact gadget

> **NOTE**: The availability of this gadget is subject to licensing. Contact your Schneider Electric representative for more information.

This gadget provides a high-level view of your effective power factor and the accumulated surcharge that a utility may charge as a result of a lagging power factor. The surcharge is accumulated for the period of time specified in the gadget and it is based on the source and surcharge rate. The power factor surcharge rate is configured in the Power Factor Impact Rate file. (This file is configured as part of the Power Quality Advisor commissioning activity.)

Note that you can control which devices are your Incomers for different time periods. For example, if your Incomer is swapped out, you can adjust the end date for the device in Hierarchy Manager so that it does not impact the power factor assessment represented in the gadget.

For information about configuring gadgets included in the Power Quality Advisor module, see .

Prerequisites

Before you can use this gadget, the following items need to be completed during the commissioning of the Power Quality Advisor module:

- A rate is defined in the Power Factor Impact Rate file.

- A hierarchy view or a virtual meter needs to be configured in the Hierarchy Manager application. See the *Hierarchy Manager Help* for further information.

Related

- Power Factor Impact Trend gadget.

- Power Quality Analysis report.

Power Factor Impact Trend gadget

NOTE: The availability of this gadget is subject to licensing. Contact your Schneider Electric representative for more information.

This gadget provides a breakdown of your effective power factor and the surcharge that a utility may charge as a result of a lagging power factor. The costs are displayed in the form of a column chart for the period of time specified in the gadget. The power factor surcharge depends on the source and the surcharge rate. The power factor surcharge rate is configured in the Power Factor Impact Rate file. (This file is configured as part of the Power Quality Advisor commissioning activity.)

Note that you can control the time period for a device associated with a hierarchy. For example, if a device included in a hierarchy is offline for a period of time, adjust the end date for the device in Hierarchy Manager so that it does not impact the power factor assessment represented in the gadget.

For information about configuring gadgets included in the Power Quality Advisor module, see "Configuring Power Quality Advisor gadgets" on page 142.

Prerequisites

Before you can use this gadget, the following items need to be completed during the commissioning of the Power Quality Advisor module:

- A rate is defined in the Power Factor Impact Rate file.

- A hierarchy view or a virtual meter needs to be configured in the Hierarchy Manager application. See the *Hierarchy Manager Help* for further information.

Related

- Power Factor Impact gadget.

- Power Quality Analysis report.

Power Quality Events Breakdown gadget

NOTE: The availability of this gadget is subject to licensing. Contact your Schneider Electric representative for more information.

Depending on the configuration of your system for power quality purposes, this gadget depicts the power quality events that occurred in the system for a specified time period in terms of Voltage Sags, Voltage Swells, Interruptions, Transients, Over Voltage, or Under Voltage categories. The percentage distribution of the events is represented in a pie chart.

Place your pointer on a portion of the pie chart to open a tooltip indicating the number of events for that category. Click a portion of the pie chart to separate it from the pie for easier interpretation.

For information about configuring gadgets included in the Power Quality Advisor module, see "Configuring Power Quality Advisor gadgets" on page 142.

Prerequisites

Before you can use this gadget, configure which devices to include and/or exclude for each type of power quality event and disturbance during the commissioning of the Power Quality Advisor module.

Related

- Power Quality Events Impact gadget.

- Power Quality Events Location gadget.

- Power Quality Analysis report.

Power Quality Events Impact gadget

NOTE: The availability of this gadget is subject to licensing. Contact your Schneider Electric representative for more information.

This gadget indicates how many power quality events can likely impact a facility. It also indicates the total number of events that have been detected.

For information about configuring gadgets included in the Power Quality Advisor module, see "Configuring Power Quality Advisor gadgets" on page 142.

Prerequisites

Before you can use this gadget, configure which devices to include and/or exclude for each type of power quality event and disturbance during the commissioning of the Power Quality Advisor module.

Related

- Power Quality Events Breakdown gadget.

- Power Quality Events Location gadget.

- Power Quality Analysis Report.

Power Quality Events Location gadget

NOTE: The availability of this gadget is subject to licensing. Contact your Schneider Electric representative for more information.

This gadget shows a bar chart classifying the total number of power quality events that occurred in the system in terms of external, internal, or undetermined locations. In addition, it indicates whether the events had a likely process impact or no process impact on the system. This information helps to indicate where Power Quality events with the highest impact occur in the system.

Place your pointer on a bar in the chart to open a tooltip indicating the number of events represented by the bar and whether or not their is a likely process impact.

For information about configuring gadgets included in the Power Quality Advisor module, see "Configuring Power Quality Advisor gadgets" on page 142.

Prerequisites

Before you can use this gadget, configure which devices to include and/or exclude for each type of power quality event and disturbance during the commissioning of the Power Quality Advisor module.

Related

- Power Quality Events Breakdown gadget.

- Power Quality Events Impact gadget.

- Power Quality Analysis Report.

Power Quality Impact gadget

NOTE: The availability of this gadget is subject to licensing. Contact your Schneider Electric representative for more information.

This gadget indicates the impact in terms of downtime and the cost associated with the specified time period that a system experienced the downtime. It also provides a breakdown of the power quality events that correspond to the downtime in terms of external, internal, or undetermined locations.

For information about configuring gadgets included in the Power Quality Advisor module, see "Configuring Power Quality Advisor gadgets" on page 142.

Prerequisite

Before you can use this gadget, an hourly rate for use in your production environment needs to be included in the Power Quality Group configuration file during the commissioning of the Power Quality Advisor module.

Related

- Power Quality Impact Trend gadget.

- Power Quality Impact report.

Power Quality Impact Trend gadget

NOTE: The availability of this gadget is subject to licensing. Contact your Schneider Electric representative for more information.

This gadget shows the impact of downtime by aggregation period (day, week, or month) over the time range selected in the gadget. The data is accumulated for each aggregation period and is represented in stacked colums in the chart. External, internal, and undetermined locations are distinguished by colors in each column.

For information about configuring gadgets included in the Power Quality Advisor module, see "Configuring Power Quality Advisor gadgets" on page 142.

Prerequisite

Before you can use this gadget, an hourly rate for use in your production environment needs to be included in the Power Quality Group configuration file during the commissioning of the Power Quality Advisor module.

Related

- Power Quality Impact gadget.

- Power Quality Impact report.

Power Quality Rating gadget

NOTE: The availability of this gadget is subject to licensing. Contact your Schneider Electric representative for more information.

This gadget shows the overall power quality rating in terms of a letter grade between A and F. Any power quality events that contribute to the rating are identified under **Main Contributors** in the gadget.

The determination of the Power Quality Rating is based on established thresholds and limits defined in IEEE519, IEC 61000-4-30, EN50160, and IEEE1159 standards.

For information about configuring gadgets included in the Power Quality Advisor module, see "Configuring Power Quality Advisor gadgets" on page 142.

Prerequisites

Before you can use this gadget, configure which devices to include and/or exclude for each type of power quality event and disturbance during the commissioning of the Power Quality Advisor module.

Related

- Power Quality Events Breakdown gadget.

- Power Quality Rating Trend gadget.

- Power Quality Analysis Report.

Power Quality Rating Trend gadget

> **NOTE**: The availability of this gadget is subject to licensing. Contact your Schneider Electric representative for more information.

This gadget shows the power quality rating in a column chart. The columns are associated with the aggregation that you select for the specified time range. Tooltips indicating the date and the power quality rating open when you place your pointer on the columns.

The determination of the Power Quality Rating is based on established thresholds and limits defined in IEEE519, IEC 61000-4-30, EN50160, and IEEE1159 standards.

For information about configuring gadgets included in the Power Quality Advisor module, see "Configuring Power Quality Advisor gadgets" on page 142.

Prerequisites

Before you can use this gadget, configure which devices to include and/or exclude for each type of power quality event and disturbance during the commissioning of the Power Quality Advisor module.

Related

- Power Quality Rating gadget.

Power Quality Advisor reports

The Power Quality Advisor module includes the following reports:

- "Power Quality Analysis Report" on page 149

- "Power Quality Impact Report" on page 150

⚠ **CAUTION**

INACCURATE DATA RESULTS

- Do not incorrectly configure the system; this can lead to inaccurate reports and/or data results.
- Do not rely solely on reports or data results to determine if the system is 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 injury or equipment damage.

Power Quality Analysis Report

> **NOTE**: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

This report summarizes power quality events and disturbances occurring in a production environment. The events include voltage transients, sags, swells, and interruptions, as well as over voltage and under voltage events. Disturbances are related to harmonics, unbalances, flicker, and frequency variation. The report also includes a power factor status. An understanding of these events and disturbances can help you determine actions to take to reduce production downtime and to increase equipment lifetime and reliability.

Depending on the events and disturbances you select, the generated report provides data categorized as follows:

- **Power Quality Event Summary**, consisting of Power Quality Events Breakdown, Power Quality Events Impact, and Power Quality Events Location.
    - Power Quality Events Breakdown shows the percent distribution of the events in a pie chart.
    - Power Quality Events Impact shows a percent distribution of the events with a likely impact and no impact in a pie chart.
    - Power Quality Events Location shows the distribution of the number of events in a bar chart with likely impact and no impact identified for each of the External, Internal, and Undetermined locations.
- **Power Quality Events — Details**, consisting of events impact and events location for each detected event. and Disturbance Details for each detected disturbance.
    - Events Impact shows the number of each event type with a likely impact and no impact.
    - Events Location provides a distribution of the number of each event with a likely impact and no impact in External, Internal, and Undetermined locations.
- **Power Quality Disturbances — Details**, consisting of a graphical representation of the distribution for each disturbance followed by a data table containing measurement and value details.

- **Power Factor — Details**, consisting of additional information on power quality disturbances. The logged data represented in a trend chart is for each Incomer or main meter defined in the PowerQualityGroups.csv file. The table below the chart shows Active and Reactive energy data grouped by each power source meter. The red target line in the chart is set to 92 by default on the report definition page.

See "Power Quality Advisor events and disturbances" on page 151 for additional information.

Prerequisites

Before you can use the Power Quality Analysis report, the following items need to be completed during the commissioning of the Power Quality Advisor module:

- The Power Quality Group is configured for use in your production environment.

- A rate is defined in the Power Factor Impact Rate file.

- Configure which devices to include and/or exclude for each type of power quality event and disturbance.

- Devices used to record power quality data must be installed, configured, and communicating correctly.

Related

- Power Quality Impact Report – provides an estimated impact of production downtime.

- Power Quality Events Breakdown, Power Quality Events Impact, and Power Quality Events Location gadgets – provide a graphical representation of power quality events.

Report inputs

- Title

- Reporting Period

- Include Events and Disturbances in the Detail Section

- Power Factor Target

- Include Non Impacting Events

- Include Data Tables in the Detail Section

- Include Data Warnings

Power Quality Impact Report

> **NOTE**: The availability of this report is subject to licensing. Contact your Schneider Electric representative for more information.

This report indicates impact from downtime that occurred for a power quality group and provides an estimated cost associated for a given period of time that is calculated using the rate defined in the Power Quality Group configuration file. It also provides information about power quality events that may be the cause of the downtime, and indicates whether they occurred internally, externally, or are from an undetermined location.

Prerequisites

Before you can use the Power Quality Impact report, the following items need to be completed during the commissioning of the Power Quality Advisor module:

- The Power Quality Group needs to be configured for use in your production environment.

- Devices used to alarm on downtime must be installed, configured, and communicating correctly.

Related

- Power Quality Impact gadget – provides a graphical representation of external. internal, and undetermined power quality events.

- Power Quality Analysis Report– provides summarizes power quality events and disturbances occurring in a production environment.

Report inputs

- Title

- Group

- Reporting Period

- Event Location

- Include Undetermined Events

- Include Data Warnings

# Power Quality Advisor events and disturbances

Events and disturbances are defined as follows for Power Quality Advisor:

- **Voltage Transients**: short-duration high over voltage spikes of several thousands of volts and amps.

- **Voltage Sags**: short duration decrease in the voltage magnitude typically from 90 to 10 percent of the nominal voltage.

- **Voltage Swells**: short duration increase in voltage magnitude typically from 110 to 180 percent of the nominal voltage.

- **Voltage Interruptions**: loss of the supply voltage of less than 10 percent of the nominal voltage.

- **Over Voltage**: long duration (more than 1 minute) increase in the voltage magnitude typically from 110 to 120 percent of the nominal voltage.

- **Under Voltage**: long duration (more than 1 minute) decrease in the voltage magnitude typically from 80 to 90 percent of the nominal voltage.

- **Harmonics**: steady state waveform distortion of 0 to 20 percent of nominal. Harmonic distortion is further classified as follows:

  - THDI, or Total Harmonic Current Distortion, represents the total harmonic current distortion of the waveform at the particular moment when the measurement is taken.

    – THDU, or Total Harmonic Voltage Distortion, represents the total harmonic voltage distortion of the fundamental voltage waveform when current flows through devices with reactance or resistance, causing a voltage drop.

- **Unbalances**: steady state non-symmetrical voltages and currents typically from 0.5 to 2.5 percent of the nominal voltage and 1.0 to 30% of the nominal current.

- **Flicker** (voltage fluctuation): intermittent voltage waveform envelope variations typically from 0.1 to 7 percent of nominal.

- **Power Factor**: the ratio between active and apparent power. For the Power Quality Analysis report, the **Power Factor — Details** section shows Active and Reactive energy data grouped by each power source meter.

- **Frequency Variation**: intermittent deviation of the frequency up to 5 percent deviation of the nominal frequency.

Power Quality event classifications

The following image illustrates the classification of events in relation to a CBEMA chart. The Power Quality Advisor gadgets and reports follow this same color classification of Power Quality Events.
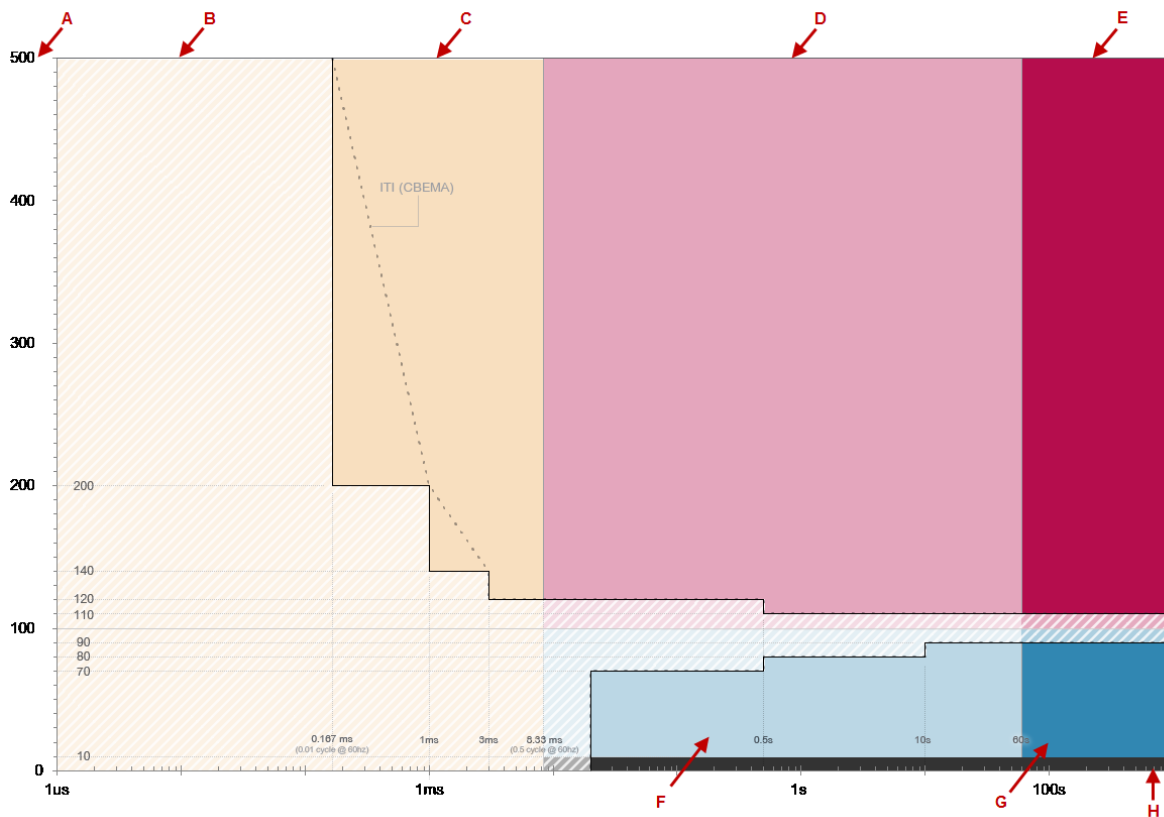
A	Percent of nominal voltage	B	No impact region	C	Transient	D	Swell
E	Over Voltage	F	Sag	G	Under Voltage	H	Interruption

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Web Applications – Help Topics