Copyright Notice

Copyright © 2013-2015 Panoramic Power Ltd. All rights reserved.
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overview</td>
<td>4</td>
</tr>
<tr>
<td>Installing the Deployment Tool</td>
<td>4</td>
</tr>
<tr>
<td>Launching the Deployment Tool</td>
<td>4</td>
</tr>
<tr>
<td>Mapping the Circuits</td>
<td>5</td>
</tr>
<tr>
<td>Creating a Site</td>
<td>6</td>
</tr>
<tr>
<td>Adding a Building</td>
<td>7</td>
</tr>
<tr>
<td>Adding a Zone</td>
<td>8</td>
</tr>
<tr>
<td>Adding an Electrical Panel</td>
<td>8</td>
</tr>
<tr>
<td>Allocating a Bridge</td>
<td>9</td>
</tr>
<tr>
<td>Viewing and Modifying Bridges</td>
<td>10</td>
</tr>
<tr>
<td>Modifying and Deleting Site Components</td>
<td>10</td>
</tr>
<tr>
<td>Building the Electrical Layout for Correct Aggregation of Consumption</td>
<td>11</td>
</tr>
<tr>
<td>Populating the Panels</td>
<td>12</td>
</tr>
<tr>
<td>Registering the Installed Sensor</td>
<td>15</td>
</tr>
<tr>
<td>Assigning a Different CT Rate to Each Phase (PAN-42 only)</td>
<td>17</td>
</tr>
<tr>
<td>Changing Sensor Serial Numbers</td>
<td>17</td>
</tr>
<tr>
<td>Multiplying Sensor Readings by a Factor</td>
<td>17</td>
</tr>
<tr>
<td>Clearing a Multiplication Factor</td>
<td>17</td>
</tr>
<tr>
<td>Removing a Sensor</td>
<td>18</td>
</tr>
<tr>
<td>Using External Meters</td>
<td>18</td>
</tr>
<tr>
<td>Monitoring Sensor Activity</td>
<td>18</td>
</tr>
<tr>
<td>Utilities</td>
<td>19</td>
</tr>
<tr>
<td>Finding Data</td>
<td>19</td>
</tr>
<tr>
<td>Support</td>
<td>19</td>
</tr>
</tbody>
</table>
Overview

Panoramic Power System monitors electrical energy consumption at individual circuit level and detects excess usage allowing organizations to identify and reduce energy and maintenance expenses.

This user guide explains how to use the Deployment Tool.

Installing the Deployment Tool

You need the Panoramic Power Deployment Tool to map the circuits and to monitor the proper functioning of the sensors after they are installed.

Follow these steps:

   
   You can install the tool in any folder.

2. Double-click the setup.exe file and follow the installation messages.

   The process creates an entry in your Windows Start menu.

Launching the Deployment Tool

Follow these steps:

1. Open your Windows Start menu and select Panoramic Power, Deployment Tool, Deployment Tool.

2. Enter your Username and Password.
3. In **Scope**, select the site you want to access.
   This is relevant only for multi-site accounts.

4. Click **Login**.

   ![Site Makeup](image)

   Use the **Print** command to print the displayed information. The printout includes the electrical layout as well.

---

**Mapping the Circuits**

This procedure consists of recording the hierarchic layout of the site to be monitored. At the top of the hierarchy stands the customer account, such as a large store chain consisting of multiple sites. The customers are pre-defined in your Deployment Tool. At first only the top (customer) levels are displayed. You build the hierarchies below each customer.

![Locations for Panoramic Power Demo Site](image)

---

5
Customers have **sites** and each site is hierarchically divided into **buildings**, building into **zones** (e.g. a floor, a wing) and zones into electrical **panels**.

You must go through the entire hierarchy even if the site consists of only one building and no flats and all panels are concentrated in one zone.

**Creating a Site**

Follow these steps:

1. Click the customer (topmost) box and then click **Add**.

2. Enter the information described below.

3. Click **Save**.

A description of the site parameters follows.

**Type**

Display-only. This value cannot be changed.
**Name, Short Name, Description**
Enter the site's name. Optionally type in a shorter name.

For documentation purposes, enter a few words that describe the site.

**Time Zone**
Consumption is presented in reports per time slices. To show the correct local times, select the time zone where this site is located.

**Tariff Plan**
Select one of the available tariff plans for your site. The tariff plans are created by your account administrator.

**Street through Coordinates**
Enter the physical address of the site, including its latitude and longitude.

**Facility Type**
Select the nature of the sites: plant, office, etc.

---

**Adding a Building**

Follow these steps:

1. Click the site that contains the building and then click **Add**.

2. Enter a **Name** and a **Description** for this building and specify the **Area** size.

3. Click **Save**.
Adding a Zone

Same as adding a building, only select the building that contains the zone.

![Image of adding a zone](image)

Adding an Electrical Panel

Follow these steps:

1. Click the zone that contains the panel and then click **Add**.

2. Enter the information described below and click **Save**.

A description of the site parameters follows.

**Name, Description**
Enter a name and a description for this panel.

**Nominal Voltage**
Enter the voltage standard used in this site (such as 110V, 220V).
**Line to Neutral (L-N) Voltage**
On a three-phase (wye) circuit that connects the system line to ground, voltages will be those existing between the terminals L1 - N, L2 - N, L3 - N...

**Line to Line (L-L) Voltage**
Displays the result of the calculation: (Line to Ground)* square root of 3 (1.73).

Example: On a 480 volt wye system, the Line to Ground voltage is 277 volts and Line to Line voltage is 277*1.73= 480 volts.

**Average Power Factor**
Specify the approximate power factor of the panel. Typical values are between 0.9-1.

**Allocating a Bridge**
During the mapping stage, you also record the Panoramic Power bridges that connect the different groups of sensors to the network. Bridge allocation is for administration purposes and does not affect the system.

Follow these steps:

1. In **Site Makeup**, select the level to which you want to associate a bridge.

2. Click the **Allocate Bridges** button.

3. In **Install Date**, select the date at which the bridge has been installed.

4. In **Description**, enter a few words that describe the bridge.

5. In **Bridge SN**, enter its serial number.

   The serial number appears on the front lower-right side of the bridge.

6. Click **OK**.
7. If the same level uses more than one bridge, repeat the operation.
   To reallocate a bridge, simply select the new location and allocate it again, using its serial number.
   The #Bridges column now displays the number of bridges installed at that level.

Viewing and Modifying Bridges

Click the Bridges button to list the bridges installed in the current site.

![Bridges Interface](image)

The Status column indicates whether the bridge is connected or not.

Click Monitor Connection to display more details about this bridge.

To access a bridge for modifications, select the row you want and click Edit.

If you replace a bridge, you should delete it here and then add the new one. To delete a bridge, select its row and click Delete. After the bridge record has been deleted it is marked as available for reallocation.

Modifying and Deleting Site Components

To access a site component for modifications, in the Site Makeup window click the level and then click Edit.

To delete a branch, select it and click Delete. First you need to delete all lower levels.
If you make a change in any of the branches, click the **Provision** button to signal to the back office that a change has been made. The back office needs this indication in order to update the Web application. Clicking the button marks the **Provision** column (the word Provision appears). Clicking again removes the mark.

### Building the Electrical Layout for Correct Aggregation of Consumption

Depending on how electrical panels are physically interconnected on the site, you may have a parent-child relationship between them. **To ensure the correct aggregation of consumption, you need to build the relationship in using the Electrical Layout function.**

Follow these steps:

1. In Site Makeup click **Electrical Layout**.

   ![Electrical Layout](image)

2. Identify the highest parent.
3. Identify its first descendant.
4. Drag the descendant under the parent until it snaps to its location.  
   To move a branch to the top, right-click it and select **Move to Top**.
5. Repeat this procedure for other parents and descendants until the three of your site hierarchy materializes.
6. As PAN-42 can be both a voltage and power factor data source, make sure that in **Voltage Source** and **Power Factor Source** PAN-42 is the ancestor of all other circuits in the panel.

7. Click **Save**.

The layout shows the following:

<table>
<thead>
<tr>
<th>Icon</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Three phase circuit" /></td>
<td>Three phase circuit</td>
</tr>
<tr>
<td><img src="image" alt="Single phase circuit" /></td>
<td>Single phase circuit. The green bars correspond to the phases.</td>
</tr>
<tr>
<td><img src="image" alt="Dual phase circuit" /></td>
<td>Dual phase circuit</td>
</tr>
<tr>
<td><img src="image" alt="AHU 1, Headquarters/5th Floor" /></td>
<td>Point to a branch to display an infotip that summarizes its properties.</td>
</tr>
</tbody>
</table>

### Populating the Panels

Next you will define the circuits included in each panel.

### Adding a Three-Phase Circuit

Follow these steps:

1. Click the panel definition in the **Site Makeup** window and click the **Map** button.

![Panel Mapping](image)

**Note**

The fields marked with a red asterisk are mandatory.
2. Click **New 3-Ph Circuit**.

A three-row definition appears.

3. Enter the information described below.

   As you enter information, items that are common to all three phases are copied to the other two phases (rows) automatically. For items that are not copied, enter the appropriate information for each phase separately.

   Use the **Revert Changes** button to cancel all entries that were not saved yet.

   To delete a circuit (all three phases), select the first phase and click **Delete**.

4. When you are done configuring all three phases, click **Save**.

5. Repeat the **New 3-Ph Circuit** procedure for other three-phase circuits you may have on the currently selected panel.

6. When you finish creating all circuits, click **Makeup** to return to the previous screen and repeat the procedure for other panels, if any.

A description of the circuit parameters follows.

**Note**

You can enter decimal numbers in European notation as well (a comma instead of a point: 2,5; 3,25...).

#

The line sequence number is created automatically.

**Name, Description**

Enter the name of this circuit and optionally add a short description. Use a name that describes the main consumers of electricity over this circuit, such as Refrigerators, Air Conditioners.

**Category**

Select the general category of the main consumers of this circuit. For example, Machinery, Office Appliance.

**Load Type**

Load types are automatically filtered according to the **Category** you have selected. For example, Machinery may offer such types as Conveyor while a category like Lightening might most probably not include it.

Select the desired type.
**Rate**
Enter the rate registered on the circuit breaker of this wire.

**# of Phases**
Filled automatically.

**Phase**
Select the appropriate option for this phase – R, S or T. (L1, L2, L3)

In a single-phase device, such as a single-phase air-conditioner, you can leave the default question mark (?) as you may not always know which phase is in use.

**Install**
See Registering the Installed Sensor.

**Sensor S/N**
See Registering the Installed Sensor.

**Sensor Type**
Select the type of the sensor that you intend to attach to this phase.

The External option is designed to connect an external meter to the system.

**1of3**
Select Normal.

**Adding a Single-Phase Circuit**
The procedure is the same as adding a three-phase circuit, only start it by clicking New Circuit. In this case, only one line appears but the data items are the same.

**Adding a Dual-Phase Circuit**
The procedure is the same as adding a single-phase circuit: Under #phase select "Dual"

**Duplicating Circuits**
If a circuit's configuration is identical to one that you have already created, click it (click the first phase in a three-phase entry), and then click Duplicate. Then change what needs to be changed and click Save.

If you duplicate an installed circuit (with sensor ID) the sensor ID will not be duplicated.
Splitting and Joining a 3-Phased Circuit

Right-click a 3-phased circuit and select **Split**. This splits the circuit into three single-phased circuits.

To restore the 3-phased circuit, Shift+click the three relevant entries, right-click and select **Join**.

Registering the Installed Sensor

Once you register a sensor, the Panoramic Power System begins accumulating consumption data.

After installing one or more sensors:

1. Access the Panoramic Power Deployment Tool.
2. Select the branch that represents the panel you are handling now.
3. Click **Map**.
4. In the heading of the **Install** column, click the **select all** checkbox to select all rows or just check the boxes of the specific wires you want to handle.
5. Click **Save**.
6. To register multiple sensors click **Panel Installation**. This activates a wizard that allows you to register multiple sensors in a single flow.
   
   To register just one sensor, click **Install Sensor**.
7. In **Sensor S/N**, enter the serial number of the sensor installed on this specific wire.

8. If you are installing a PAN-42 sensor, the **CT rate (A)** field appears.

   Specify the external current transformer’s (CT) rate.

9. If you are installing a PAN-42 sensor, the **Factor** field appears.

   This field can be used if the CT is measuring one line out of a number of lines, when all are connected to the same phase.

10. Click **OK**.

    If more wires were selected, the wizard moves to the next wire, and so on.

    Use **Skip** if you want to skip a wire without registering the serial number.

11. When you are done, click **OK**.

    For multiple sensors, this moves you to the next sensor registration screen. When you are done, click **Quit**.

    For a single sensor, this concludes the procedure.
Assigning a Different CT Rate to Each Phase (PAN-42 only)

If you are using different transformers with different rates, you can set a different CT rate for each phase.

1. Right-click the phase you want to change and select Update CR Rate.

2. Enter the rate and click OK.

Changing Sensor Serial Numbers

If a sensor has been replaced or if its serial number has been wrongly typed, click a row in the Panel Mapping screen, click Install Sensor and change the serial number.

Multiplying Sensor Readings by a Factor

In cases where a circuit uses more than one wire (usually two), reading can be obtained via just one sensor attached to one of the wires. As the current that runs on those wires is split equally, you simply specify a factor by which to multiply the reading. For example, for two wires you would multiply the reading by 2.

1. Access the panel (Map), right-click the phase and select Set Factor.
2. Enter the factor by which you want to multiply the reading.

   The valid values are 0 through 5, including decimal values.
3. Click OK.

   The Sensor Type column indicates the factor, between parentheses.

Clearing a Multiplication Factor

Right-click the circuit and select Clear Factor.
Removing a Sensor

If you physically remove or replace a sensor from the circuit, access the panel (select it and click Map), right click the relevant circuit and select Remove Sensor.

You can also delete the entire circuit line

Using External Meters

If you are using external meters, in Site Makeup click the External Meters button and define them.

Monitoring Sensor Activity

Sensors transmit data to the bridge, which in turn relays the information to the Panoramic Power System. To check the strength at which the sensor signals received by the bridge, click Validate in the Panel Mapping screen.

The screen displays running graphs for each sensor included in the selected panel.
A good reception is translated into a green graph running above -80. A weaker reception changes the graph color to red. Move the mouse over the graph to see the actual values. Each sensor may show a different value depending its distance from the bridge or the depth at which it is installed.

An empty graph means that something is not working well: the sensor may be broken or missing, it may be too far from the bridge (deep into the panel box) or there may not be any current running through the wire, and the like. The Y axis shows the sensor ID and the circuit name.

Clicking the Pause button freezes the graphs.

Click the Current button to plot the amount of electric charge (amperes) running in this circuit. Click again to switch to RSSI (Received Signal Strength Indicator) view.

Utilities

Finding Data

You can use the Find utility to search for any information in any screen.

As you start typing, the tool automatically switches to the screen where the data is found and places the highlighter on the nearest record that meets the search criteria.

Support

More support can be obtained at support@panpwr.com.