Optergy Enterprise + Proton

Optergy energy management allows facility managers and tenants to manage utilities and submeter consumption live through a web-browser or mobile app.

Energy Management

Visibility is the key to implementing sustainability initiatives in the built environment. What is not measured cannot be managed. Optergy provides the ability to visualize and report utility and sub meter data in real time. Displays can be created that provide an overview of utility performance with the ability to drill deeper for investigation purposes, enabling fault diagnosis fast. User specific reports for major building load groups or individual meters can be automatically generated and emailed via CSV or PDF. Out of normal condition alarming provides instant notification when problems arise.

The mobile app for Android and IOS allows users to view reports, alarms and energy overview data from a single tenant, building or a portfolio of buildings in real time.

Energy Types

- Electricity
- Gas
- Water
- Thermal (chilled & hot)
- Diesel
- Waste

Meter Management

- Add/Edit/View meters
- Physical meters
- Virtual meters
- Manual entry meters
- Meter displays and status
- Custom meter points
- Meter alarms
- Energy log management
- Meter type management
- Meter templates
- Meter hierarchy management

Example meter custom display dashboard comparing utilities week on week and monthly consumption versus outside air temperature.
Simple Meter Configuration

**STEP 1** - Define meter name
**STEP 2** - Select utility type
**STEP 3** - Define meter hierarchy
**STEP 4** - Select communication method
**STEP 5** - Select meter type template
**STEP 6** - Set meter alarms
**STEP 7** - Assign user access

**Meter Types**

**Physical Meters**
Adding a physical meter the software is to communicate with.

**Forecast Meter**
Users can define forecast data to be entered. This function allows a forecast values to be tracked against actual for comparison.

**Manual Meter**
Users can enter manually meter data. For example; a meter that is created using data received from only monthly utility bills which must be manually entered. Bulk data upload can be done via CSV.

**Calculation Meter Types**

**Aggregate**
An aggregate meter is the sum of all associated meters.

**Custom**
Custom calculation meters require the calculation expression or equation to be defined. Available calculation operators are +, -, *, /, ().

**Portion**
A portion meter is configurable to a specified percentage of a given parent meter.

**Remainder**
A remainder meter is the remainder of a parent meter minus its child meters.
Energy Management System
Application Datasheet

Meter Communication

The Optergy software can communicate to meters via the following methods:

- Modbus RTU
- Modbus TCP/IP
- BACnet MSTP
- BACnet IP

Specific Meter Drivers

There are four specific meter drivers built into the Optergy base license. This allows Optergy to communicate via proprietary manufacturer protocols to the following meters:

- IME Nemo 96HD with IF96012 Memory module
- EDMI Atlas Series
- IME Nemo 96HD with IF96012 Memory module
- EDMI Genius Series
- Novus DigiRail 4C

Meter Type Templates

Meter type templates can be created and saved for the following utility types:

- Electricity
- Gas
- Water
- Diesel
- Thermal energy (chilled & hot)

Optergy has 17 Modbus meter type templates saved as standard. Standard templates included in Optergy’s base license are for the following meter types:

- Ceice Electric Technology PMC-53M Series
- IME Nemo 72L
- Pilot PMAC625
- Pilot PMAC770
- Siemens Sentron PAC3200
- Crompton Integra 1630
- IME Nemo 96HD
- Pilot PMAC735
- Schneider Electric PM700 Series
- Socomec Diris A40

If a meter type does not exist as a standard, the user can create their own BACnet or Modbus meter type template. These templates can be exported/imported for easy setup on multiple projects.
Automatic Meter Reading

The automatic meter reading function provides users with the ability to select individual meters and generate summary reports as CSV or PDF.

The report includes information such as a selected date (based on a time period selected by the user), the meter name, serial number, and the meter reading. These reports can be sent to users via email automatically as CSV or PDF.

Automatic meter readings can be used where a building owner recovers utility costs from tenant through their lease agreement without the need for a formal utility bill.

<table>
<thead>
<tr>
<th>Date</th>
<th>Meter Description</th>
<th>Serial Number</th>
<th>End Meter Reading</th>
</tr>
</thead>
<tbody>
<tr>
<td>01/14/2018</td>
<td>Aggregate Electricity Meter (Consumption)</td>
<td></td>
<td>460,607.36 kWh</td>
</tr>
<tr>
<td>01/14/2018</td>
<td>Aggregate Gas Meter (Consumption)</td>
<td></td>
<td>514,050.59 m³</td>
</tr>
<tr>
<td>01/14/2018</td>
<td>Aggregate Water Meter (Consumption)</td>
<td></td>
<td>555,527.18 l</td>
</tr>
</tbody>
</table>

Energy Log Management

The energy log management page shows the user a list of all current energy logs recorded in the Optergy database. The list shows each energy log’s name, parameter and description.

The Optergy software has built-in functionality to scan for data anomalies; such as temporarily spikes and drops in data that are occasionally caused by malfunctioning metering hardware. This scan can check all energy logs or just those selected from the table.

Users can remove abnormal data via user selectable time period, or upload data via CSV. Energy logs can be automatically emailed for a user defined period as raw 15 minute interval data or by user selectable break up intervals. For example; reading totals for daily, weekly, monthly or yearly.
The meter hierarchy page loads a graphical tree list displaying the parent/child relationships of all the meters currently in Optergy software.

When a user right clicks on a meter a drop down quick link menu will link the user to further information including:

- Meter breakdown report (only available for parent meters)
- Meter configuration
- Meter commissioning history

Custom meter points allow the user to create a BACnet point to view cumulative data for a meter within a user defined time period. For example, the user can create a custom meter point to view consumption for the previous day, week, month or year. The custom meter point’s data is stored as a BACnet Analog Input (AI) which can be trend logged, displayed on a graphic display, energy dashboard, and reports.

Custom meter points are updated every 15 minutes.
Optergy software allows users to configure alarms for meters. Users can be notified of new metering alarms in three ways:

- Appear and be displayed in the Optergy software banner
- Received as alarm emails with URL link to the meter in alarm
- Notification via Optergy mobile app banner alert

Alarm conditions include:

- Configuration changed
- Meter online
- Meter offline
- Instantaneous maximum and minimum values
- Consumption over interval
- Consumption over time
- Outside tolerance levels

Adjustable alarming conditions allows users to create context around the alarms being generated. For example; if a cooling tower top meter is installed, the user can define alarms that identify unusual water consumption outside of normal operating hours. This can identify if the typical ball valve and float water top up has failed open or closed.
Once a meter is set up in the Optergy software, a meter display page is automatically created based on the data available as defined by the meter type template. All data points on the meter display page are automatically logged so that engineering time is kept to a minimum during project delivery. Users can toggle the prebuilt report from day, week, month, year, consumption, demand or carbon emissions.

**Custom Displays - Single Line Diagrams**

Using Optergy’s built-in display tool users can create custom display pages to represent the flow of utilities throughout a building. This could be in the form of a single line diagram or by load group. For example; electricity can be grouped into loads like – lighting, general power, lifts/elevators, HVAC, general fans. Water loads can be grouped into loads like – cooling towers, toilets potable or domestic hot water.
Custom Reporting Wizard

Step 1
Utility Report Wizard
- Select Report Type
  - Consumption
  - Demand
  - Trend Log Comparison
  - Tariff Costs
  - GHG Emissions
  - Occupancy Analysis
  - Degree Days

Step 2
Utility Report Wizard
- Select Chart Type
  - Bar Chart
  - Line Chart
  - Scatter Chart
  - Area Chart
  - Pie Chart
  - Ring Chart
  - Tabular List

Step 3
Utility Report Wizard
- Select Energy Logs
  - Electricity
    - 0 selected
  - Water
    - 0 selected
  - Gas
    - 0 selected
  - Fluid energy
    - 0 selected
  - Diesel
    - 0 selected
  - Waste
    - 0 selected

Step 4
Utility Report Wizard
- Electricity Energy Logs
  - There are 0 energy logs selected for this utility type
    - Active Energy Options
    - Apparent Options
    - Reactive Options
  - Filter:
    - Filter

Step 5
Utility Report Wizard
- Select Time Period
  - This
  - Previous
  - Last
  - Before
  - After
  - Between
  - Time Period Breakup Intervals: Auto
  - Show Comparison
  - The function is not available for the selected chart and report type
  - Don't show data before commissioning date
Example Custom Reports

Example area chart report showing 24 hour energy breakdown by major load group.

Example pie graph showing percentage energy breakdown by major load group.
Example Custom Reports

**Example bar chart report showing one month's water use by day compared to outside air temperature.**

**Example line chart showing the demand profile over a one week period.**
Example Custom Reports

Example tariff cost report showing electricity costs per day over a month.

Example progress against forecast meter showing actual energy versus a manually entered forecast.