entronix
ENERGY MANAGEMENT PLATFORM

Software

The Entronix Energy Management software utilizes a stand-alone platform that does not require a control system for data acquisition. With this platform in place a user is able to access the software and power data from any media device with Internet access (PC, Tablet, or Smart phone). Our software enables organizations to manage their power meters/Channels/Points etc.. and parse power monitoring data in a way that caters to their specific needs. Data representations range from a simple customizable overview to advanced analytics in real-time. Time line events as they occur and configure alarm notifications via email or SMS with our software.

Through our virtual briefcase a user can dial in usage reports of compiled data to share with others. These reports can be generated as graphical plots, spreadsheets, PDFs, JSON files, or even raw text files. They can be run at any resolution and for any time span, for an individual meter, multiple meters, or a mathematical combination of many meters. The system can also automatically generate reports and email them to specified users on a set schedule.

REPORTING

ENERGY DASHBOARDS

VIRTUAL BRIEFCASE

POINT VIEW

CONSUMPTION VIEW

ALARM/NOTIFICATION

Consumption View

Entronix's Energy Management Software offers simple, easy-to-understand visualizations of a site's energy consumption data. From here users have a high level look at energy performance.

Consumption : Users can select a meter and quickly view all relevant energy usage information. Energy consumption compared to outdoor temperature, annual energy consumption, present power demand, future projections, and energy costs are among the numerous measurements on display.

Demand : Demand view tracks how much power is being used at any one time. A meter's power demand is graphed in real time against a backdrop that shows average ranges and when approaching new peaks.

Predicted Power Profile : Our Predicted Power Profile model accesses information about a meter's past performance on days with similar weather conditions and compares this data to current daily readings. Through data comparison Entronix EMP creates a graph predicting power demand for the remainder of the current day.

Power Quality : The Power Quality view examines the condition of the power being consumed by a meter. This feature displays the power consumed by each of the meter's phases as well as each phases power factor in order to determine whether a meter is balanced and achieving peak performance.

Comparison (multi) : Consumption comparison allows users to examine the performance of all the meters in their portfolio relative to one another. These comparisons include relative demand, relative consumption, and changes in consumption over the last 24 hours.

Demand Comparison (multi) : Demand Comparison view offers a chart to compare each meter's power demand. Each meter's demand is graphed on a heat map. This heat map's design provides for quick and simple detection of outliers.

Grid View (Multi) : The Grid view provides a tabular assessment of multiple meters. Each meter's power demand, energy consumption, current, voltage, frequency, and power factor are shown on a table together, providing for easy comparison.

Relative Performance : Relative Performance view compiles a quick overview of a meter's current performance. A gauge is presented for each meter showing the percentage of change from the previous months consumption and current projections. Energy costs by square foot and day are also displayed alongside the meter's performance.

Relative Performance : Relative Performance view compiles a quick overview of a meter's current performance. A gauge is presented for each meter showing the percentage of change from the previous months consumption and current projections. Energy costs by square foot and day are also displayed alongside the meter's performance.

Point View

Provides the ability to focus on a meter's individual data points, such as current, line voltage or apparent power.

Search Bar : The search bar supplies quick access to desired data points. It is capable of searching numerous different criteria such as: included or excluded terms, meter types, point type, and point unit.

Rolling Graph Summary : Rolling Graph Summary ensures that all valuable data is retained no matter what resolution or time frame at which data is being observed. By filtering data point history in a non-uniform, intelligent way, the Rolling Graph Summary ensures that graphs retain the information needed for accurate analysis.

Smart Time Spans : "Smart Time Spans" simplifies the process of reviewing graphed data. Instead of requiring the user to manually input starting and ending times, the user is given the choice to instead choose one of several preset time frames: one hour, eight hours, one day, one month or one year. By providing built-in options for the most useful time frames,

Natural Graphs : Different data points do not always employ the same graph type to display relevant information. Entronix EMP automatically displays the most natural graph for each data point a user chooses. This feature gives users proper data analysis and removes the possibility of frivolous data.

Static Links : When a data point is displaying critical information, it is possible to create a static link to this data. The static link will direct to the point at the time the link was created. This provides a means of revisiting valuable information at a later date, without needing to remember the specific time or needing to scroll through new data until it is found.

Controller View

Controller View offers a behavioral overview of devices not generally considered meters.
Users are able to confirm that AHUs and chillers are being used efficiently.

AHU Overview : The AHU Overview offers a general look at the behavior of air handler units. This feature creates graphs to show current and percentage of valves open in relation to outside temperature. Gauges present live readings of current and return air temperature. All of this data is displayed in conjunction with cold/hot deck temperatures and return air humidity.

AHU Returns : AHU Returns view arranges a heat map of the return air temperatures from each AHU hourly. Outliers are easy to notice, resulting in quick fault detection. This view also shows when AHUs are turning on and off, which allows for quick detection of scheduling issues.

AHU Grid : The AHU Grid creates a tabular menu of each air handler unit. Cold and hot deck temperatures, humidity, current data sets are accessible from this view.

Chiller Grid : The Chiller Grid view is a tabular view of each chiller. Information shown includes current, chilled water return, set point & supply temperatures, number of compressors, and supply flow.

Chiller Currents : The Chiller Currents view creates a 72-hour heat map of the currents passing through all chillers. The heat map makes locating outliers easy, which allows for quick problem identification. Since the heat map also shows which chillers are turning on and when, it is also useful in identifying scheduling concerns.

Analysis & Reporting

Entronix EMP : Provides users with an robust tool set for analyzing, presenting, and reporting data.
Live History Live History reports are designed to compare multiple data points on the same graph. This report is ideal for comparing similar data points. Time ranges and visualizations are both customizable with available graphs including area stacks, histograms, pie charts, and more.

Export : Easily Create spreadsheets from data points with the EMP Export feature. Simply select a time range and sampling rate to produce usable CSY & JSON documents, as well as graphical images. Converting point value information into these formats is beneficial for running custom data analysis on points or creating customized reports.

Chronogram : Chronogram reports create heat maps for data points. These heat maps are ideal for demand-based points, allowing for quick and easy detection of outliers and scheduling issues.

Area Plot : Use the area plot feature to arrange a data point's value over multiple days onto a single graph. Each day is graphed as a separate gray line, and the average of all of the days is graphed as a blue line. This provides a way to visualize the range of values over which a point varies at different times of the day.

Overview : Overview reports offer a general look at the performance of a meter. The meter's performance is analyzed by comparing its consumption to both daily and monthly climate, graphing its monthly usage, and creating a phase diagram to determine how its power quality.

Greenhouse Emissions : Greenhouse Emission reports look at energy usage in terms of its environmental impact. A chosen meter's energy consumption is shown in kilowatt hours used, as well as pounds of CO_2 emitted and equivalent number of trees. This provides buildings with a streamlined way of determining their environmental footprint.

Financial : Financial reports convert kilowatts into dollars. With a financial report, understanding the relation between energy usage and cost incurred is simplified. These reports include graphs of meter efficiency (kilo-watt-hours used and cents spent per square foot), power statistics (range of kilowatt demand and dollars spent per hour) and total energy usage. These numbers are then converted into spreadsheet form for analysis.

Demand : Demand reports create graphs to analyze demand over daily and monthly periods. Each graph contains two horizontal lines, which serve to show when power demand reaches 90% of peak usage and when it reaches or surpasses peak usage. Demand reports are invaluable in identifying peak demand periods and creating strategies to avoid reaching new peaks.

Analysis & Reporting Continued

Export Logs : Export Logs are concerned with activity on the site itself. The report accesses histories of actions, events, hits, notifications, and node logs and compiles them into JSON documents for analysis. These reports provide a means of analyzing how building management is interacting with the software.

Monthly Consumption : Entronix EMP predicts future energy consumption by analyzing past energy usage data. This real-time data converts a fixed cost to a variable cost - after viewing a prediction of the month's energy usage, action can be taken to minimize costs. The report predicts both monthly and yearly usage by accessing data from the previous month or year. Both future and past period usages are shown on a single chart, which includes a measure of the percentage change between past period and projected period.

Overtime Tenant Billing : Overtime reports are designed to allow building management to accurately bill their tenants for overtime energy usage. The generated reports include multiple PDFs and spreadsheets detailing kilowatt-hours used by individual customers, as well as the total cost incurred. Bar graphs showing overtime usage by customer are included, as are heat maps detailing overtime usage by day of the week and by hour of the day.

Dashboards

Dashboards : Dashboards allow users to store multiple related reports in one place. This provides a central location to view all information relevant to every facet of energy management.

Group Dashboards : Each user group is able to create a separate dashboard. This is useful for groups interested in separate types of data - an engineering group can use a dashboard consisting of points related to power quality, while management can use one filled with information about energy usage and greenhouse emissions.

Portfolio Manager

Multiple Sites : The Entronix portfolio manager is able to accommodate multiple separate buildings. Separate spreadsheets can be maintained for each site, or spreadsheets consisting of multiple sites can be created.

Automatic Data Input : Each point feed in the spreadsheet can be set to manual input or automatic input. With automatic input, the point feeds data can be set to import its value from any point in the system. This choice can be changed at any time.

MAD TEST : By implementing a statistical method called the MAD test (Maximum Amplitude Deviation Test), EPIC is able to identify outliers in data inputs. This allows EPIC to flag potentially inaccurate data for further review. All data that has been flagged is highlighted in red.

Analysis : Compare data among multiple sites. Analysis can occur between multiple points at one sight, one point at multiple sites, or even multiple points at multiple sites. Depending on the choice, these points will either be graphed on one chart or multiple charts (if one point is being compared among multiple sites, one graph will be used; if multiple points are compared among multiple sites, multiple charts are used). Offering a natural environment to view building information, EPIC allows the user to easily compare points and buildings without requiring any complex configuration.

Energystar Integration

Managing an Energy Star account is streamlined with the EMP software. All the tasks required to properly handle an Energy Star account can be performed directly from the EMP software itself.

Import Buildings : All information currently listed on an Energy Star account can be imported to EMP. This includes all buildings listed, and all meters associated with said buildings. This avoids the repetition inherent in requiring the user to reenter data already input on Energy Star.

Edit Energystar Information : On top of importing already existing Information from Energy Star, EMP Energy Star Integration allows the user to also edit this information. New meters can be added, and existing meters can be associated with meters on the EMP site.

Export Energy Data : After Energy Star meters have been associated with meters added to EMP, the energy usage data stored on EMP can be exported directly to Energy Star. This provides for Energy Star to receive the most accurate and up-to-date information on the user's energy usage, while requiring no action from the user themselves.

Site Customization : Customizations within Entronix EMP are quick, intuitive, and user friendly.

Adding Home-screens : Any view can be pinned to the front page in place of the default time line. Simply choose the "Enable view selection," and "Show a view in place of the time line and statistics on the homepage," options from the provisioning section of settings. Next, enter Consumption View, choose the desired view, and click the pin on the top-right of the screen.

Adding Meters : Adding meters is a simple, three-click process. Access the Programming drop down menu, select meters, click the "new" button on the top-right of the screen, and then choose the type of meter desired.

Adding Alarms : Alarms are used to alert users when certain point values have extended beyond an acceptable range. For instance, if instantaneous power demand has exceeded 90% of peak usage, it is possible to alert building engineers via email, text message, or SMS. To add an alarm, select the desired point, click on the eye symbol next to the point title, and then click Add Alarm.

Universities Relevant Features

Manage Campus Energy Usage
The Entronix Energy Management Platform equips building and facility engineers with real time data needed to establish maximum efficiency.

Consumption View offers an overview on energy usage, while Demand View looks at power demand, with a focus on controlling peak demand and usage . The Predicted Power Profile reviews past days with similar weather conditions in order to make precise predictions on future energy use. These features and more provide building engineers with tools necessary to efficiently manage energy usage campus-wide.

Identify Poorly Performing Buildings
For campuses with many buildings, manually identifying problem spots can be difficult. Identify poorly performing buildings quickly with the EMP Portfolio Manager. Data points from each building can be compared to one another graphically to target weak links or inefficiencies . This allows building engineers to locate problem buildings and focus energy saving efforts.

Simplify Spreadsheets with Portfolio Manager
Our Portfolio Manager is designed to modernize and simplify building spreadsheets. Manually creating spreadsheets is a thing of the past. Each column included in the spreadsheet can be set to receive either manual input or automatic input pulled from meter data. The Portfolio Manager ensures that data is accurate by marking potential outliers for further review.

Go Green!
EMP provides several tools to aid in understanding and minimizing environmental impact. Greenhouse Emissions reports allow energy usage to be visualized in terms of its environmental effect. After maximizing energy efficiency with EMP, EMP is also able to automate Energy Star accounts, ensuring that your building gets the recognition it deserves.

Corporate High-Rise Relevant Features

Entronix's Energy Management Software offers simple, easy-to-understand visualizations of a site's energy High-rise Commercial Buildings

Waste and unnecessary expenditure directly correlate to energy inefficiency in commercial buildings. Entronix's Energy Management Platform provides building engineers with the tools needed to maximize building efficiency, and provides reporting capabilities to simplify the jobs of building management.

Simplify Building Management
EMP offers building engineers all the information needed to convert energy usage from a fixed cost to a variable cost. With EMP Predicted Power Profile, current weather readings are compared with previous days with similar weather conditions to create precise energy consumption predictions. These predictions allow building engineers to make adjustments before energy use exceeds desired level.

Demand View tracks the building's current power demand. Anytime the power demand begins to approach peak usage levels, building engineers can be alerted immediately via (text message,email,SMS). Stabilizing power demand peaks, EMP provides the means to cut energy costs in real time.

Automate Energy Star
The EMP software integrates Energy star account management alongside its' other features. All buildings and meters currently listed on an Energy Star account can be imported into EMP. After importing, new meters can be added directly through EMP, and existing meters can be associated with meters using the EMP software. After Energy Star meters have been associated with meters added to EMP, the energy usage data stored on EMP can be exported directly to Energy Star. This provides Energy Star with the most accurate and up-to-date information on the user's energy usage, while requiring no action from the user themselves.

Bill Tenants for Overtime Energy Usage
Overtime reports are designed for building management to accurately bill tenants for overtime energy usage. The generated reports include multiple PDFs and spreadsheets detailing kilowatt-hours used by individual customers, as well as the total cost incurred. Bar graphs showing overtime usage by customers are included, as are heat maps detailing overtime usage by day of the week and by hour of the day.

Receive Customized Solutions from LINQ
All Entronix clients are able to take the next step in increasing building efficiency by receiving customized solutions from Entronix's sister company, LINQ. LINQ specializes in connecting the Internet of Things in large commercial facilities. The LINQ team consists of hardware, software, and applications engineers from the building automation industry, ready to consult with building management on custom solutions to their problems.

Tools For Development Groups

For growing development groups, energy management can seem complicated. With a large number of buildings, manually keeping track of how each is individually performing is nearly a full time job. Entronix's Energy Management Platform vastly simplifies this process by automating data entry and providing reporting features to quickly analyze building performance.

Simplify Spreadsheets with the Portfolio Manager
The Portfolio Manager is designed to modernize and simplify building spreadsheets. The need to manually create spreadsheets is removed,as the entire process has been automated. Each column included in the spreadsheet can be set to receive either manual input or automatic input pulled from meter data. EMP ensures that data is accurate by marking potential outliers for further review.

Compare Building Performances
EMP Portfolio Manager provides an easy means of comparing performance between buildings. Comparing energy consumption between buildings requires no more than clicking on the buildings' names. Each building's energy consumption will be shown on a single graph. With straightforward comparisons, the Portfolio Manager rapidly identifies poorly performing buildings.

Accurately Bill Tenants
As the size of your portfolio increases, manually billing tenants for their overtime energy usage becomes time consuming and tedious. With EMP Overtime reports, billing tenants is completely automated. Concise and accurate reports regarding energy usage can be generated to show where, when, and how tenants used their energy. This information can then be automatically sent to tenants, avoiding the need for time consuming manual billing.

Get Financial Reports on Each Building
Keeping track of each building's bottom line is of the utmost importance. With EMP Financial reporting features, keeping track of energy costs is simple. Separate reports can be run for each building. These reports generate detailed accounts of energy costs, including total energy usage, dollars spent per hour, and dollars spent for square foot.

ESCO Project Benefits

Create Reports to Analyze Client's Energy Usage
The Entronix EMP software comes equipped with the ability to consolidate energy data into a wide range of reports. These reports are ideal for analyzing and comparing a customer's energy usage before and after maximizing energy efficiency.

Financial reports use energy consumption information and utility prices to create a detailed description of the costs of energy usage. The report includes graphs of meter efficiency (kilowatt-hours used and cents spent per square foot), power statistics (range of kilowatt demand and dollars spent per hour) and total energy usage.

Monthly Consumption reports offer a look at how current energy usage habits will effect the future. By demonstrating the long-term effects of current energy consumption, these reports are ideal for displaying the need to increase efficiency. Future and past period usages are shown on a single chart, which includes a measure of the percentage change between past consumption and future projections. These Monthly Consumption reports reveal the differences in energy consumption after higher efficiency standards are implemented.

Identify Inefficiencies with EMP Controller View
Controller View offers a behavioral overview of devices not generally considered meters. Users are able to confirm that AHUs and chillers are being used efficiently. AHU returns are arranged on a heat map through this feature, making outliers and faults easily identifiable. This view also shows when AHUs are starting and stopping, which allows for quick detection of scheduling conflicts. The EMP controller view also provides a 72 heat map of current running through chillers, chilled water returns data, set point & supply temperatures, number of compressors, and supply flow.

Consult with Expert Building Automation Engineers
Even with the Entronix EMP in place maximizing energy efficiency does require some expertise. Our team consists of hardware, software, and applications engineers from the automation industry who are readily available to assist you in streamlining you portfolio.

Demonstrate Improved Energy Efficiency
All of the features and tools provided in the Entronix Energy Management Platform aid in increasing energy efficiency. The real-time data storage, data acquisition, and reporting features also empower users to visually convey what control measures produced these beneficial effects.

Military Installation Applications

Energy management on large military installations is a daunting logistical task. The Entronix Energy Management Platform is designed to streamline this process through automation. With EMP, data entry occurs instantaneously, and reports can be created with ease.

Streamline Meter Reading
Entronix has developed a secure and simple application, which simplifies the process of acquiring power meter data. Each meter is given an individual QR code. When it is scanned, the app directs the user to the correct meter and allows data to be input. The QR code app is also equipped to identify potential errors and alert the user for further review.

Simplify Spreadsheets with the Portfolio Manager
The Entronix Portfolio Manager is designed to modernize and simplify building spreadsheets. The need to manually create spreadsheets is removed through automation. Each column included in the spreadsheet can be set to receive either manual or automatic input pulled from meter data. Our Portfolio Manager ensures that data is accurate by marking potential outliers or faults for closer inspection.

Easily Produce Reports
EMP's extensive Analysis and Reporting features allow users to quickly generate reports for energy demand, finances, monthly consumption and much more. With the portfolio manager reports can also be created on the performance of multiple buildings. Building can be compared to each other, analyzing all data related to energy management. All reports are designed with the user in mind, requiring little more than clicking to "run."

Preserve Security
While other energy management systems may require access to an installation's Internet connection, the Entronix's Energy Management Platform is entirely self contained. By utilizing its own separate Internet connection, EMP provides military bases with a way of monitoring energy usage while maintaining the highest levels of security.