Active Power Management

Sysmaster Power Management System provides dynamic electricity metering and control services via the Internet.

Active Power Management
Case Study

FEATURES

- Real-Time Electrical System Monitoring and Optimization

- Compelling Increase in Electrical System Performance and Bill Savings

- Intelligent Electrical System Management

- Data Exchange via RS485 serial cable with over 1000 managed devices

- Intuitive, User-Friendly Web Management Interface

- Alarms and Notifications

Problem:

Central Mall Dobrich, Bulgaria is a shopping center in the center of the city of Dobrich, that required to implement an Intelligent Power Management system to provide power control and electricity usage optimization.

Solution:

Sysmaster Power Management System was implemented to provide dynamic electricity metering and control services. All tenant of the shopping center received logins for direct access to their power meters to allow remote control and power turn-on/off management via Web.

Positive Results:

There are two types of positive results that are achieved after the system was implemented.

   A. Electricity cost savings amount to 15% reduction in the monthly bill for common areas and over 20% reduction in the monthly bills of individual tenants based on power shutdown scheduling and usage control.
   - 15% cost reduction in electricity used by escalators and elevators (10 units) as a direct result of power shutdown during off-hours.
   - 15% cost reduction in AC expenses for common areas based on power shutdown during off-hours.
   - 15% cost reduction in Light expenses for common areas based on power shutdown during off-hours.
   - 20% cost reduction in individual tenant AC and light expenses based on real-time control and power consumption optimization.

   B. Tenant monitoring of power usage in real-time allows them to proactively manage their electrical bill and use electricity within their budget. Tenants can check on their real-time electricity usage and optimize it by intelligently managing the electrical appliances.
   - 50% reduction in tenant complains resulting in high-electricity bills. Tenants can verify their electricity usage in real-time and thus optimize it.

Real-Time Electrical System Monitoring and Optimization

VoiceMaster Power Management is designed to monitor and optimize the operation of electrical systems in real-time. The server receives data from SmartPower 10 meters attached to monitored electrical appliances. VoiceMaster Power Management analyzes the data and based on predefined power consumption patterns, time-of-day, pre-set limits, or pre-set schedule, turns on/off the connected appliances in real-time. Single VoiceMaster Power Management server with RS485 link can monitor over 1000 devices and provide valuable electrical consumption data.

Data Exchange via RS485 up to 1500m

The system consists of VoiceMaster Power Management Billing Server with RS485 interface that is connected via UTP CAT5 cable to all mono-phase and multi-phase power meters. The computer also uses an external DSL device to allow remote access via Web. All mono-phase and multi-phase meters include digital electrical usage meters and built-in control switch to allow power metering and power shutdown in real-time. The initial investment for the system was $27,000.

Intelligent Electrical System Management

The VoiceMaster Power Management software can intelligently manage electrical power consumption by automatically switching appliances based on predefined operational parameters such as: time-of-day usage, pre-set schedule, or pre-defined power limits. The management is done centrally utilizing state-of-the-art software running on an industrial PC computer that communicates via RS485 to the SmartPower 10 meters. Using collected data, the management server provides data and graphical reports for KiloWatt power consumption.

Alarms and Notifications

The VoiceMaster Power Management server also offers alarms and notifications functionality. Alarms can be triggered by system performance, power outages, threshold crossings, electrical surges and other events configured by the system administrator. When a particular event triggers an alarm, VoiceMaster Power Management sends notifications to pre-defined email, HTTP, or SMS server.

Intuitive, User-Friendly Web Management Interface

The VoiceMaster Power Management electrical management software offers user-friendly web management interface that allows quick and easy configuration and data reporting. Via the interface, users can access and manage all controlled SmartPower 10 meters. Additionally, users can set action thresholds, notifications, alarms, switching commands and other features. Report retrieval is simple and optimized and provides advanced data analysis tools.

The Implementation:

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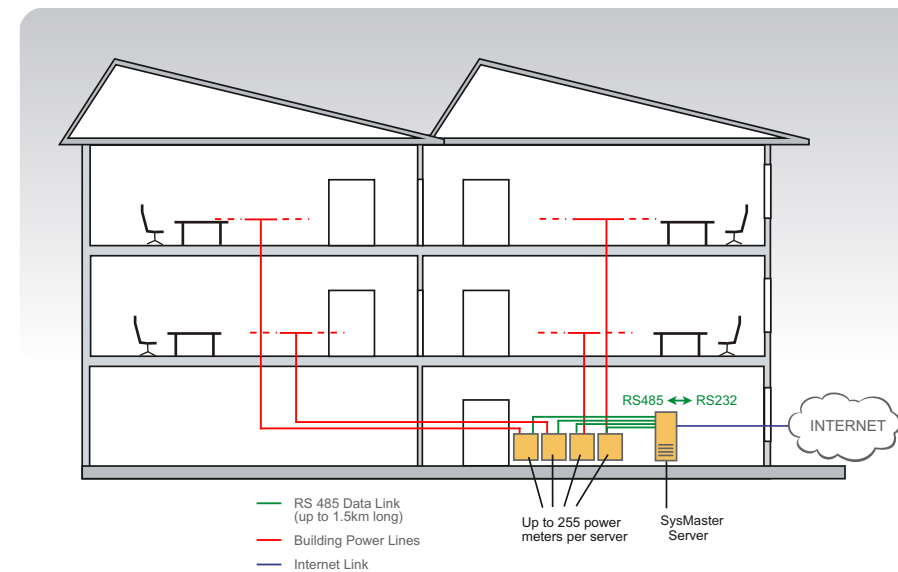
BUILDING OPERATION MODE

Building Operation Mode is used for large building such as office building, shopping centers, large residential buildings, and buildings that aggregate many power meters for various power consumers. The SmartPower10 meters are connected to the central Voicemaster server using RS485 serial data cable that can connect up to 255 devices over 1.5km long line.