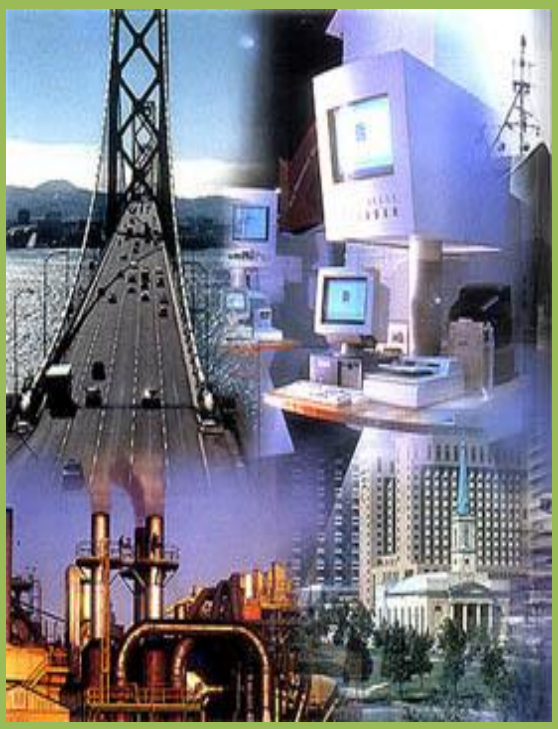
ENERGY ENHANCER PARTNER

SOFTHARD®
Thinking inside the controls



Energy ACCOUNTING
µ-EMS (Energy Management System)
M & V (Measurement & Verification)
Protection, Control

A Solution for Every Business
Metering and Sub-metering Solutions, Products and Services for

- Industry : Factory, Plants
- Commercial Buildings : Offices
- Retail properties : Malls, Multiplex
- Critical : Server rooms
- Infrastructure : Air ports, Metro
- Substation, Power house Automation

You need the tools to uncover all opportunities, detect abnormalities, avoid risks, track progress against goals and verify success

µ-EMS system enables all stakeholders, board of directors for strategic decisions and from CEO to facility and engineering managers, to respond quickly to potential problems and manage energy in financial and environmental terms.

Quality, Accuracy, Innovation and Economical Support

The challenge

Rising energy costs and ever-stricter environmental regulations are squeezing productivity and reducing competitiveness in the industry. Being profitable in today's market means controlling expenses. Greater energy efficiency is therefore the order of the day. In order to achieve this, there must be more transparency and real time accurate information on actual amount of energy consumed as well as degree of efficiency and the losses incurred and/or likely to be incurred in case system is allowed to continue in its present form.

Power availability and reliability are among the most critical issues affecting your company's profitability and competitiveness. The challenge is to ensure availability of safe, clean, reliable power, and meet expanding demand without raising production costs.

When utility cost exceeds 30% or more of your overall operating expenses, knowing **when, where** and **how** your operation consumes energy is vital. By tracking actual energy and utility usage, through implementing intricate energy management system.

The solution

SOFTHARD µ-EMS aids all phases of your operations. Our system can verify normal activities and provide actionable information to help proactively assess and analyze your network to determine and implement improvements.

A Single System for Multi-Utilities

With µ-EMS you can fully utilize your Utility Management system's present and future potential. You get complete compatibility to integrate multi-utilities such as Energy & Power Management, Pneumatic air pressure plants, water, gas, HVAC, monitoring and management system. Powerful tools bring the best of SCADA, Energy Management and Utility Management together in an integrated, cohesive control system that helps you respond to virtually any utility system challenge.

At the times of crisis event the system can instantly raise alarms, help maintain the safety of personnel and equipment, then offer possible solutions to avoid or fix abnormalities to minimize effects of the event.

Sub-metering Solutions for Industry, Infrastructure

From finance to engineering, µ-EMS technology gives industry professionals the energy intelligence and control they need to support strategic decisions and establish best energy practices. It will help you to reduce operational costs and meet new emissions standards without compromising production schedules or product quality. Key points are monitored throughout your power distribution, building and backup systems. Enterprise-level software helps you maximize the use of your existing energy assets, increase energy efficiency and avoid demand or power factor penalties. Use it to uncover hidden power problems that can shorten equipment life or cause costly downtime.

An energy and power management solution from µ-EMS can help you, whether you manage a nationwide chain or a single multi- site. SOFTHARD i.MWM meters and software deliver the essential and actionable information you need to reduce expenses and enhance profits. SOFTHARD system offers you an end-to-end solution that is a low-cost and high-return investment. You can quickly, easily and cost-effectively allocate individual feeders / motors / plants / departments / factory electrical usage separately i.e. similar to financial accounting you can get energy accounting individual ledgers for each feeders / motors / plants / departments / factory to evaluate their individual efficiency for their energy usage. This helps you to allocate energy cost in manufacturing for individual product.

Sub-metering Solutions for Office Buildings, Retail Operations

For Buildings / Offices / Malls / Multiplex you can quickly, easily and cost effectively allocate individual occupant electrical usage and bill the tenant for electrical usage. Hence you can allocate cost according to actual energy used, instead of just by square footage.

Govt. of INDIA mandatory rules : BEE (Bureau of Energy Efficiency) : PAT Scheme : Perform Achieve and Trade

BEE introduced PAT Scheme which came in to effect in year 2012 . Targets of Energy saving has to be Updated for next 3 years with savings plans. All companies are facing difficulties to submit Energy Saving Plan, WITHOUT Energy PATTERNs and DATA history. How to give the Energy Saving Plan ?

Progressive companies can become the **Achievers** of PAT Scheme and can have double benefits, first benefit of energy saving / operational cost saving and second benefit of generating additional income by trading EScerts (**E**nergy **S**aving **cert**ificate**s**) through generating additional energy savings over and above target energy savings.

Laggards who FAIL to achieve target have to face **huge energy losses** and **penalties for not achieving the target** at the end of the three year Cycle.

- First **Loss** is due to the use of the **excess energy**
- **Additional losses for BUYING the EScerts** from the other companies which have met the targets.
- To **pay penalty of Rs. 10,00,000=00**, for not achieving the energy reduction targets at the end of cycle 1 i.e 31st March 2015
- To **pay penalty of Rs. 10,000 per day**, for each day from 31st March till achieving the energy reduction targets

Progressive companies are found aggressively pursuing energy efficiency opportunities and will NOT have the COST LIABILITIES in PAT Scheme. These companies will actually GAIN from selling the EScerts. Laggards obviously will face problems and pay penalty.

ASHRAE 90.1 standards

Advanced Metering Requirements - Benchmark the energy efficiency of your existing building and its systems to verify that new designs meet minimum energy performance reductions per ASHRAE 90.1 standards.

Optimize Energy Performance - Use our µ-EMS system to monitor all utilities and help yourself to decide when to switch to alternative sources of power, shed loads or net meter power, back to the utility. Utilities Management such as Pneumatic air and water efficiency, etc. has easy integration of data from various meters enables a µ-EMS system to measure and validate the results of conservation efforts.

Energy Protection - EPAct 2005 Compliance

- **Section 103 of the Energy Policy Act of 2005 mandates** that real-time, advanced meters, sub-meters be installed in all federal buildings by 2012. In addition,
- **Section 102 of the Energy Policy Act of 2005 mandates** an annual energy reduction of 2% per year 2006 thru 2015.

µ-EMS energy and power management system is a scalable, long-term solution that will help your federal government agency achieve compliance with section 103 of the EPAct now, while providing the foundation for sustained savings into the future, and identify the energy savings opportunities needed to comply with section 102.

An intimate knowledge of the act, combined with our complete µ-EMS, ensures that your µ-EMS solution will fulfill the Department of Energy's Federal Advanced Metering Guidance Document requirements.

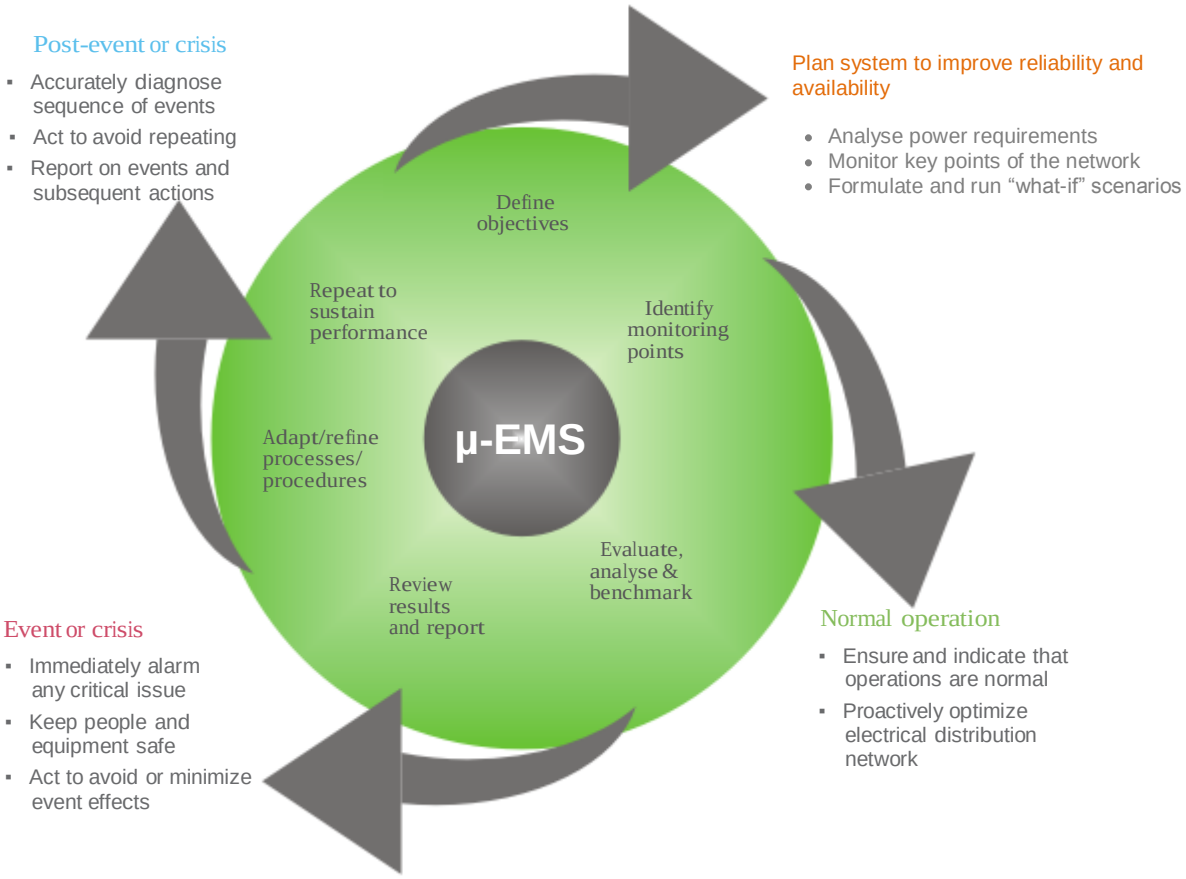
Standard ISO 50001 (EN 16001) Compliance

Stipulates the logging of data and a sustainable improvement plan for industrial energy management in the future. Stricter legal requirements and increasing CO_2 penalties and levies will further increase the pressure to be as environmentally sensitive as possible in manufacturing operations. All these challenges, however, also offer the opportunity not only to cut CO_2 emissions, but also at the same time to reduce production costs through the optimized use of energy.

Green Building Council

Developed LEED (Leadership in Energy & Environmental Design) as nationally accepted benchmark for high performance Green Buildings.


Identify
Energy efficiency consulting
Evaluate
Corresponding
ISO 50001
BEE - PAT,
ASHRAE 90.1,
EPAct 2005,
Green Building
Realize


Post-event or crisis
Accurately diagnose sequence of events
Act to avoid repeating
Report on events and subsequent actions
Plan system to improve reliability and availability
Analyse power requirements
Monitor key points of the network
Formulate and run "what-if" scenarios
Define objectives
Identify monitoring points
Evaluate, analyse & benchmark
Review results and report
Adapt/refine processes/ procedures
Repeat to sustain performance
µ-EMS
Event or crisis
Immediately alarm any critical issue
Keep people and equipment safe
Act to avoid or minimize event effects
Normal operation
Ensure and indicate that operations are normal
Proactively optimize electrical distribution network

Intelligent Metering – Protection, Advanced Software, Integrated Solutions

The right products for the job

A µ-EMS solution can monitor and control an industrial plant or facility, a nationwide business or a global enterprise through networked intelligent energy meters with protection devices linked to µ-EMS software. Hardware can be selected to match to the exact requirements of the location being monitored.

Flexible communications connect to software that retrieves, aggregates, and processes meter, alarms and Motor / Feeders / circuit breaker data, records it and notifies operations staff of alarm conditions. Integrate data from existing building and process management systems so you can incorporate energy reliability initiatives, such as power quality monitoring, alarm event management and network asset management.

Remove guesswork and discover which initiatives offer the highest potential of improving energy reliability. Optimize your infrastructure and make the most efficient use of your power distribution system to meet production goals.

Operation

The central function is to process all energy-specific measured values at the field level. Special functions for active load, air, water and gas management help avoid expensive peak loads and optimize gas usage. Online trending and an attractive visualization system show current and forecasted energy flows. Departures from scheduled operation are recorded by an efficient alarm and fault management system.

µ-EMS system can compare load characteristics at each level to confirm that operations are correct and equipment is operating properly. Abnormal events are detected quickly. Advanced visualization and reporting tools make the process easy, even for a minimal crew of operations staff. This will reduce effort, labor costs and verify system installation is in accordance with intended design.

During normal operations, µ-EMS technology provides real-time status of your electrical distribution network.

Uncompromising supervision for your critical energy assets

Optimize equipment use

Energy assets throughout all facilities must be properly maintained to assure that equipment operates reliably, cost-effectively and efficiently in terms of energy consumption, to guarantee maximum uptime and productivity.

Real-time and historical data audits reveal relationships between equipment and the conditions affecting system stability.

- Optimize timing and frequency of preventive, proactive maintenance
- Automatically track devices, motors, feeders or breaker trips
- Alarm on motor performance parameters, transformer temperatures and other wear indicators
- Justify replacement of more energy efficient equipment
- Differentiate between mechanical and electrical power problems
- Justify investment in equipment to improve power quality
- Allow customized, predictive alarming on motor start up, circuit loading, etc.

Optimize power distribution

Minimize the costs of overstressing or under utilizing power distribution. µ-EMS technology strengthens your infrastructure by helping you design right-sized power systems for new facilities, expansions or retrofits.

- Design to fit actual usage patterns, not guesswork
- Reveal historical and present load patterns and hidden capacity
- Determine whether existing infrastructure can accommodate new equipment.

Evaluate and mitigate risks

µ-EMS technology helps evaluate and mitigate risks throughout the power distribution network. You can analyse your network to optimize clean power and ensure that backup systems are ready, should the need for them arise.

- Exercise, validate, and document correct usage of backup power systems
- Determine if, where, and what type of harmonic filters and power factor correction devices are required to maintain desired power quality levels
- Monitors and analyses all aspects of power quality, including harmonics, disturbances and other important characteristics
- Indicates whether an electrical disturbance originated inside or outside your facility

Event or crisis

Reliable, high-quality power is essential to profits, yet power quality-related issues are becoming more complex.

Power quality problems can become expensive very quickly. Power sags/swells, transients and harmonics can damage equipment and interrupt or halt production and raise safety concerns.

µ-EMS technology is invaluable in avoiding or mitigating the effects of power quality or availability issues.

Alarming and event notification

To maintain the high power quality that keeps critical systems running, personnel must keep on top of conditions and respond quickly to alarms.

µ-EMS technology continuously collects data from key points across substations or facilities, including generators, transformers, transfer switches and motors, feeders, circuit breakers.

Centralized displays and concise reporting of power quality conditions alert the appropriate staff to impending problems. With the help of Local Monitoring, Remote Monitoring, e-mail or SMS generation on abnormal event or crisis, operators can immediately act to maintain network integrity and avoid downtime.

Bulletproof performance to fit your business

Post-event

After an event has occurred and actions have stabilized the network, or returned conditions to normal, the µ-EMS system has a range of powerful tools to support post-event activities, such as:

- Detailed root cause analysis to track the propagation of disturbances
- Event analysis to determine best solution to avoid reoccurrence
- Document systems changes and provide reports

Trend Display

Shows measured values as graphs. They can be easily created by pre-defining parameters such as measurements, time period and sampling frequency. Enabling you to detect abnormalities or deviations from targets. Analyze the root cause of a disturbance or to make decisions.

Business advantages

- Cutting edge technology to increase profitability
- Cost allocation, Measurement and Verification, Power Factor Correction, Power Quality Analysis, Infrastructure optimization, Alarming and Event notification
- Reduce energy cost, downtime and stoppages. Reduce critical event response time. Reduce ROI time.
- Improve energy efficiency. Improve network reliability. Improve energy information reporting.
- Increase productivity and profits.
- Its exceptionally efficient and flexible functions for recording consumption data, allocating energy charges, planning, and energy forecasting – as well as generating energy balances and CO_2 monitoring.
- Significant energy savings thanks to maximum transparency of energy demand, energy costs and consumption per cost center.
- Consumption-optimized load profiles through avoidance of peak loads and flare losses thanks to monitoring, planning, and optimization of consumption
- Tracking & detecting source of over consumption. Reliable prediction of Energy demand.
- Greater competitiveness thanks to permanent reduction of total energy cost.
- Outage Management reduces outage time from hours to minutes.
- A fast, quantifiable return on investment through both a low total cost of ownership and rich functionality that returns multiple financial benefits.
- A comprehensive portfolio of modular, scalable components that enable affordable system expansion as needs dictate and budgets allow.
- End-to-end interoperability offering seamless integration with business, accounting, BMS / EMS / UMS / SCADA applications.
- A complete range of compatible, complementary, single-sourced SOFTHARD energy, HVAC and automation solutions.
- Reduce energy expenses by 25% or more and increase net operating income
- Lower capital expenses with better utilization of your current infrastructure
- Enable best practices and improved operations & maintenance procedures
- Increase power system uptime through root cause analysis of power quality issues

µ-EMS is your key to achieving sustained results and will help you align strategic decision making and energy management best practices for a lower total cost of ownership.

Deliver the data people need – how they want it and when they need it

Power Quality

Protection

M & V
Measurement & Verification

EMS / UMS
Energy / Utility Management System

Local Monitoring

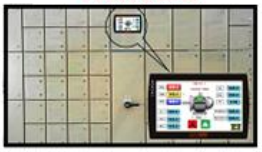
Global Remote Monitoring

From Car.... USA....

Global Remote Access

H.O. India

i.MCC Panel



REDUNDANT Local µ-SCADA

From Train.... Japan....

From Airport.... Londan....

Energy ACCOUNTING, M &V, µ-EMS, Metering Products

With decades of experience, thousands of customers, and the industry's largest selection of cutting-edge metering and software products, you can trust that a i.MWM & i.MCC commercial sub-metering solutions will fit the needs of your business now and into the future. No matter which µ-EMS you choose, you'll have the energy information and alarm management you need to make the right decisions.

Meters, Protection Devices and Energy Measuring Devices

Engineered with a low cost of installation and ownership in mind, µ-EMS & i.MWM energy instrumentation is feature-rich and easy to use. Manufactured for demanding electrical applications and supporting industry accuracy standards, they are excellent complements for your Industrial and commercial sub-metering application. Compact size combined with panel and wireless, Ethernet technology allow simpler, less costly installation in retrofits and new construction.

SOFTHARD : Global specialist in intelligent energy management

SOFTHARD provides innovative, integrated solutions that make energy safer, more reliable and more efficient while making your operations more productive and sustainable.

From power distribution to expert services and support, our unique solutions are focused on energy efficiency, reliability and safety. We help you to reduce costs and emissions, stay connected at all times, and tap into a clean, secure and uninterrupted power supply.

Let us help you discover new opportunities to make the most of your energy.

Applications

- Demand Control
- Energy ACCOUNTING, Energy Cost Control
- Operations & Maintenance
- Facility Performance Benchmarking
- Power Quality Monitoring and Analysis
- Tenant Sub-billing
- Utility Bill Verification
- Value-added Tenant Services

Third Party Data Integration

Flexible SOFTHARD i.MWM meters and µ-EMS offer a wealth of integration capabilities so you can gain additional value from your existing infrastructure. Depending on your needs and the µ-EMS with UTILITY MANAGEMENT SYSTEM you choose, data from various factory utilities such as pneumatic air pressure, water and gas meters, PLCs, HVAC systems and others can be incorporated into your µ-EMS energy and power management system and alarm management system.

Professional Engineering Services

i.MWM / MPD is renowned for providing exceptional quality and service. Skilled Automation professionals use their technical expertise and industry knowledge to optimize your µ-EMS to the unique requirements of your operation. We offer expert advice and guidance from the initial system selection criteria through advanced devices installation, software installation, commissioning, technical support and product training. We work with you to understand your performance goals, then design a µ-EMS solution tailored to your business objectives. Put our knowledge to the test.

Energy Flow Real-time Monitoring and control EMS

www.softhard.in

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