PowerSines’ new, cutting-edge Energy Hub is a full-scale solution which enables the highest level of electricity efficiency, typically saving 15-20% of the total energy consumed, while providing new levels of management and visibility to managers and analysts.

The system integrates advanced power control, analytics, machine learning algorithms, sub-metering multiple sensors, meters, HVAC integration and loads control, all packed together and connected through our smart gateway with IoT cloud platform.

With a highly attractive payback period of 1.5 - 3 years, PowerSines Energy Hub is the smartest choice for Energy Managers, taking energy saving and management systems into a new league.
ENERGY HUB APPLICATION FEATURES

Advanced IoT Platform Integrating Energy and Multiple Other Site Related Sensors

Real Time Monitoring Dashboards
Highly interactive dashboard monitoring screens displaying energy consumption, energy-saving, electrical figures, and site operational parameters – can be viewed by site or as multiple sites.

Analytics
Dashboard-based analytics, visualizes empowering insights about energy consumption, patterns, and other operational parameters, on the fly or per user request, including sites’ comparison, normalized by square meters, and more.

Machine Learning
Using advanced proprietary machine learning algorithms of anomaly detection and energy efficiency scoring and forecasting, the system can identify anomalies and patterns empowering energy managers’ decision making.

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ENERGY HUB APPLICATION FEATURES

Advanced Rules Engine
Using a wizard-based interface, rules can be intuitively defined to activate or adjust field devices, settings, sensors, interface with third-party servers, send SMS/email notifications, and much more.

Scheduler
The system allows intuitive settings of repetitive tasks and sequences using the scheduler feature, optimizing energy usage and operational excellence for applicable sites.

Periodic Energy Reports
The system allows the creation of customized periodical reports per site or per multi-site grouping. Interactive reports enable a quick snapshot of energy parameters, analysis, benchmarking, and more.

Power Quality Scan
The system employs advanced upper harmonics scanning on main or on sub-metering channels in conjunction with its other electrical parameters measurement to provide Power Quality Analysis for sites.

Alerts
The system allows for highly flexible settings of alerts on energy and other operational parameters thresholds, fully customized by administrators. Alerts are displayed per site, or grouping of sites, and can be filtered as needed.

B.I. - Smart Queries
Leveraging big data and wide applicative knowhow, the system provides unique business intelligence (BI) insights, simplifying queries and data analytics, benchmarking and creating powerful managerial reports.

Energy Saving Measurement Algorithms
Empowered by advanced algorithms, the system monitors the energy usage and saving for each site or for a group of sites; available also with sub-metering modules.

Safety Status Detection
Extending the Power Quality Scan feature, the system is able to identify potential electrical safety hazards in a site’s infrastructure, creating a status report and alerts for managers to take preventive actions.
Energy Hub System Elements

PowerSines Energy Hub

Gateway
Industrial grade embedded Linux based gateway platform

- Communication options: LAN only, or LAN with 3G-Cellular
- Local storage: optional local backup
- Edge Analytics: support field level analytics real-time processing
- Application Logic: Execution of rules or other application features at device level
- Implementing Industrial multi-protocol edge computing
- API: open interface for 3rd party devices and systems
- Modbus Master hub to connect multiple Modbus slave devices (sensors, meters, etc.)
- Open industrial protocols: additional integration options (ModBus, MBus, Bacnet, Profibus, OPC, etc.)
- Optional connectivity: GPIO, Zigbee or HVAC
- Security: 256 bit encryption, banking industry level

System Elements
Integrated with advanced voltage optimization system

- Full electrical parameters measurement: Vin, I, PF, kW, KVA, Vout
- Energy measurements: daily, weekly, monthly, YTD annual, last year
- Multi-channel sub-metering
- Full electrical & energy consumption parameters (V, I, PF, kW, kVA, kWh)
  - Option A: 3 channels 3 phase circuits or 9 channels single phase measurement (mix)
  - Option B: 7 channels 3 phase circuits or 21 channels single phase measurement (mix)
- Load control: 5 channels, each channel can be assigned to a sub-metering channel for automation
- Up to 3 integrated temp sensors (wired)
- RS-232 Modbus for gateway connectivity
- RS-485/232 port for sensors, meters and device integrations
- Wireless sensors connectivity
- Provisional ports: UART, I2C, SPI for additional modules connectivity