

## ISMART

### DESCRIPTION

iSMART is our cloud - based smart IIOT Platform or managing efficiency, productivity, control, preventive & predictive maintenance for demand - side management of system and process parameter monitoring, It is designed to handle quantitative and qualitative data to provide users with and detailed analysis and to their systems enabling them with possibilities for optimisation and building efficiency in their networks.

The value addition provided by the system is its problem diagnosis engine based on the trends and data mining of historical data in cloud of an asset preventing expensive downtimes and breakdown of machines, motors, transformers and other loads. The iSMART CLOUD also provides basic remote manual control capability and conditional execution / controlling capability .

We also offer Android & IOS apps for any Android & IOS device, which can be downloaded from Google Play Store & Apple App Store. Mobile App : iSMART energy

A PC / Laptop / Server / gateway functions as the server or base station to continuously execute all actions and functions described above. The configuration of the PC / Laptop / Server / gateway and the associated network connectivity will depend on the amount of data being collected, analyzed. reported and executed.

### WORKING PRINCIPLE

The iSMART CLOUD System executes the following functions continuously :

Polling energy meters for specific data . Collection of data from various devices and storage in raw format in a database in a iSMART cloud .

- ✦ Evaluation of raw data to extract meaningful information and present the information in specific reports .
- ✦ Generate alarms based on user - defined limits.
- ✦ Generate Notification based on user - defined limits.
- ✦ Generate a live dashboard for online monitoring. The device which will be configured to iSMART energy is : Energy meter
- ✦ VFD
- ✦ PLC
- ✦ Solar Inverters
- ✦ Any moudbus device with Rs485 port



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### APPLICATION OF ISMART

- ✦ Planning and Scheduling of Resources.
- ✦ Audit Applications and to create a Management Information Report.
- ✦ Root Cause Analysis of Breakdown.
- ✦ Predictive Maintenance.
- ✦ Helps in Achieving Efficiency.
- ✦ Optimization of Running Hours.
- ✦ Water, Energy Management.
- ✦ Transformer Monitoring, HVAC Monitoring.
- ✦ Plant Monitoring.
- ✦ Solar Remote Monitoring.
- ✦ Billing generation.
- ✦ Revenue management.

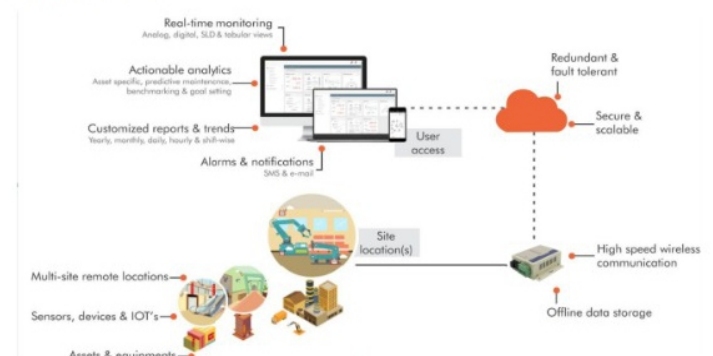
### Why iSMART

- ✦ Do a analysis of your energy with our iSMART Platform to have awareness about the consumption pattern of different production equipment, true energy cost for your different product. Energy cost allocation is made possible for various products and fixes Energy - saving formula. Evolve a typical Energy Cost Centre pattern.
- ✦ Know your Plant Energy Efficiency, predict the Maximum Demand with your varying load profile and even out the varying demands to save Maximum Demand charges.
- ✦ Reduce Specific Energy Consumption for your Product by monitoring it on a real - time basis identifying the low productivity and wrong scheduling.
- ✦ Even out the Demand and Energy will help you to achieve Optimum Utilization of your Assets like Transformers, Motors, AC etc.
- ✦ Compute energy bills yourselves, compare with that from Utility and check your Utility bills Draw Energy Consumption trends (Hourly, Daily, Weekly, Monthly) Determine Future Energy use when production planning changed. i.e Diagnose specific areas of wasted energy.
- ✦ Manage energy consumption as a variable cost rather assuming as a fixed cost.
- ✦ Maximum Demand identification

### iSMART ( Cloud ) Specifications

- ✦ Multi - Language - User Settable.
- ✦ Add-on assets monitoring applications like Transformer monitoring, Solar Power Generation monitoring, OEE, SCADA, weather, Power Factor & many more.
- ✦ Finance dashboard to monitor the performance of the individual asset.
- ✦ Users can build custom code on top of the platform by the use and access of API.
- ✦ Rs485 Gateway with in - build LAN & GSM based communication channel to Cloud Server to connect 30 devices.
- ✦ Grouping feature for visualization of nodes.
- ✦ Customization arithmetic equation.
- ✦ Display unit management feature to correct multiplication factor.
- ✦ Module to view data volume and sampling.
- ✦ Full User admin
- ✦ Email if users log on from different PC
- ✦ OPT SMS for mobile application registration for security.
- ✦ Over the air configuration of the gateway.
- ✦ Auto mail & SMS to the user to inform off status of Node.
- ✦ Summary view of the plant - Total configured Nodes, Total Connected Nodes, Total connected Gateways .
- ✦ Total User, Total Locations.
- ✦ Encrypted data transfer

Network Architecture



## ISMART

### iSMART (Desktop) Specification

- ✦ Next Generation data analytics platform for configuration of all parameters of WAGES ( Water , Air Gas , Electric & Steam ) over RS485 / Ethernet.
- ✦ Node Base Licence with easy to add - on.
- ✦ Open source Cassandra database.
- ✦ Parameter & Device agnostics platform.
- ✦ Multi - Language - User Settable.
- ✦ Alarms & Notification - User settable SMS & email notification & alarms.
- ✦ Reports in Excel & pdf format, along with user - configurable excel report.
- ✦ Real - time data visualization - Analog, Digital, Graphical, Network & Tabular view.
- ✦ Multi Licence with different authorization ( User & Admin)
- ✦ Unrestricted parameter logging of energy meter.
- ✦ Network visualization & Analysis Graphical & SCADA view visualization & network health visualization.
- ✦ Next Generation data analytics engine :-
  - A. Trend report at interval : Raw data, 15 min. Hourly & Daily with user selectable Duration : Day, Week, Month, Year & Custom.
  - B. Consumption report for Single Node multi parameter & Multi Node Single Parameter at interval Raw data, 15 min, Hourly & Daily with user - selectable Duration : Day, Week, Month, Year & Custom.
  - C. Compare reports on one click for a selected report for the cumulative parameter.
  - D. Shift Consumption report of the nodes as per the shift setting for section level / Plant level. (Location / Sub - location ). Same report used to get consumption as per the TOD.
  - E. Customized excel report format for ready MIS reporting with auto mailing facility to multiple users.
  - F. All Node Consumption report to get the report of the cumulative parameters of all nodes.
  - G. One Day reading report to get the report of the cumulative parameters of grouped nodes.
  - H. Pie chart report to get the distribution pattern of consumption of cumulative parameter.
- ✦ RS485 Gateway / Converter with in - build LAN & GSM based communication channel to Cloud Server to connect 30 devices.
- ✦ Grouping feature for visualization of nodes.
- ✦ Customization arithmetic equation
- ✦ Display unit management feature to correct multiplication factor
- ✦ Full User admin
- ✦ Over the air configuration of gateway / Converter
- ✦ On - line auto up - gradation of Software (iSMART logger & viewer).
- ✦ Authenticated login & Logout of iSMART energy. Encrypted data transmission.
- ✦ Role - based user based Authenticated login & Log - off of iSMART energy.
- ✦ Role - Based Access Control (RBAC)

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