everSENSE™
Your Plant in your Pocket

Energy Conservation | Environment | Process Efficiency
Today, plants run for more time with increasingly stringent quality requirements. Managers are hard-pressed to keep their plants running efficiently. Studies show that plant managers tend to spend more than half their work day away from their desk. With more plants having 24x7 production cycles, managers spend a majority of their time without real-time data of the processes they are responsible for improving. This lack of information leads to slower decisions and productivity, efficiency losses.

Forbes Marshall has developed everSENSE™, an IoT (Internet of Things) product to help plant managers to improve plant safety, productivity and efficiency.

**Plant Key Performance Indicators**

<table>
<thead>
<tr>
<th>Steam Energy Factor (SEF)</th>
<th>Specific Steam Consumption (SSC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indication of steam utilisation efficiency of the process with respect to dynamic load conditions</td>
<td>Evaluation of actual versus ideal steam consumption per unit of production</td>
</tr>
<tr>
<td>Evaluation of excess steam consumption</td>
<td>Indication of production cost of the steam utility</td>
</tr>
<tr>
<td>Identification of the point of steam loss and alerts</td>
<td>Indication of excess steam consumption and alerts</td>
</tr>
<tr>
<td>Steam quality</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Condensate Recovery Factor (CRF)</th>
<th>Utility Costing and Targeting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantification of percentage of condensate recovered</td>
<td>Consumption evaluation of steam, fuel (furnace oil / natural gas, etc.), electricity etc.</td>
</tr>
<tr>
<td>Identification of condensate loss or drain and alerts</td>
<td>Quantification and analysis of utility ratios with respect to production (eg: power/production)</td>
</tr>
<tr>
<td>Energy and fuel saving estimation</td>
<td>Department-wise utility costing, targeting and alerts</td>
</tr>
</tbody>
</table>

**Many More KPIs**

- Vibration of ID/FD fans in boiler/process
- Machine/process loading pattern and capacity utilisation
- Paper breaks and quality
- Power factor and kVA demand of electrical energy consumers
Typical Scenarios in the Process Industry

Scenario 1: Overview of key parameters

Before everSENSE™
- No insight of the process
- No control over production output
- Lowered profits

Manager

Info.

Process 1
- No Trends
- No Patterns
- Only Reports

Owner

Process 2
- Complete control over process
- Planned production under control
- Higher profits

Plant Manager

Info.

Process 3
- Better co-ordination between process and utilities
- Optimised batch time
- Enhanced productivity and quality

After everSENSE™

Complete control over process
Planned production under control
Higher profits

Scenario 2: Typical batch process

Before everSENSE™
- No co-ordination between process and utilities
- Increased batch time
- Reduced productivity and quality

At 3 PM
- NO Pressure Reduction
- Process 1 ON
- Process 2 OFF
- Process 3 OFF

Quick check on mobile
FOR QUICK ACTIONS

No Overlap

After everSENSE™
- Better co-ordination between process and utilities
- Optimised batch time
- Enhanced productivity and quality

Quick check on mobile
FOR QUICK ACTIONS

No Overlap
Dashboard

- All important parameters asset-wise
- See quick trends
- Updated in real time
- Customised reports for different KPI's
- Asset wise alert indications
- Easy troubleshooting of communication device

Trends and Deviation Analysis

- Discover hidden patterns to optimise usage
- Discover co-relations between parameters
- Export in CSV, PDF, image formats
- Minute level data analysis
- Past data analysis with 48 hours time window
- Quick analysis of deviation in daily / monthly consumption
- Reports on average, minimum, maximum and totalised values

Reports

- Daily, shift wise, monthly reports
- Custom report for each user
- Get department wise consumption
- Export data in CSV
- Past data analysis with 15 - 31 days time window

Alarms

- Root cause analysis through alarm analysis
- Easy view of time of alarm, time to rectify, actual and set point values
- See pattern before and after alarm to perform RCA
- Export alarms in CSV
everSENSE™ Mobile APP

Critical plant parameter data available on mobile
everSENSE provides critical plant data to designated users with a mobile application that runs on any smart phone.

Get instant notification of parameter deviations
everSENSE will send alerts right to your mobile. Alert settings can be customised for each parameter. With just your phone, you can identify problems. Anywhere. Anytime.

Base your decision on historical data for precise future action
Trends and reports of selected parameters give a better understanding of patterns hidden within your data. Use improved visibility to improve control over your operations.

Easily record and share your data
You can export trend graphs, historical logs with just one touch. Easily share with designated people via e-mail or printouts.

It is a flexible and scalable solution
everSENSE offers total flexibility and scalability. You can select any parameter which is critical. You can also change the number of people and their access levels to the system as and when business requirements change.

Compatibility
Already have sensors installed?
everSENSE is designed to be compatible with all industry standard sensor configurations. Modules are also available to ensure that sensor data can be routed to the everSENSE without any change to your existing data acquisition system.

Consultations with Forbes Marshall
We have over 70 years of experience in the process industry. Forbes Marshall can understand your requirements and define a specific solution.
Technical Specifications

<table>
<thead>
<tr>
<th>everSENSE™ Variants</th>
<th>Basic</th>
<th>Advanced</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data source - meter, level, SCADA, CRM, TT, PT, weighing machine, manual input</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Data and alerts on Android and iPhone</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Number of parameters</td>
<td>Upto 50</td>
<td>Upto 250 (Modbus RTU), 1000 (TCP/IP &amp; OPC)</td>
</tr>
<tr>
<td>Data output - CSV, PDF, image, email</td>
<td>Y</td>
<td>Y</td>
</tr>
<tr>
<td>Number of users</td>
<td>3</td>
<td>Multiple</td>
</tr>
<tr>
<td>Communication with other systems - ERP, SCADA, controller, display</td>
<td>N</td>
<td>Y</td>
</tr>
<tr>
<td>Custom report</td>
<td>N</td>
<td>Y</td>
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