Saft

A company of TotalEnergies

I-Sight®

Saft Digital Platform for monitoring your Energy Storage System

Intensium® Sight (I-Sight) is Saft cloudbased data management platform which embeds all information services needed for your battery storage assets operation and maintenance, with AI-based functionalities. I-Sight retrieves data from the CUBE, Saft inhouse Battery Management System (qualified hardware and software controller) for Saft Intensium battery containers.

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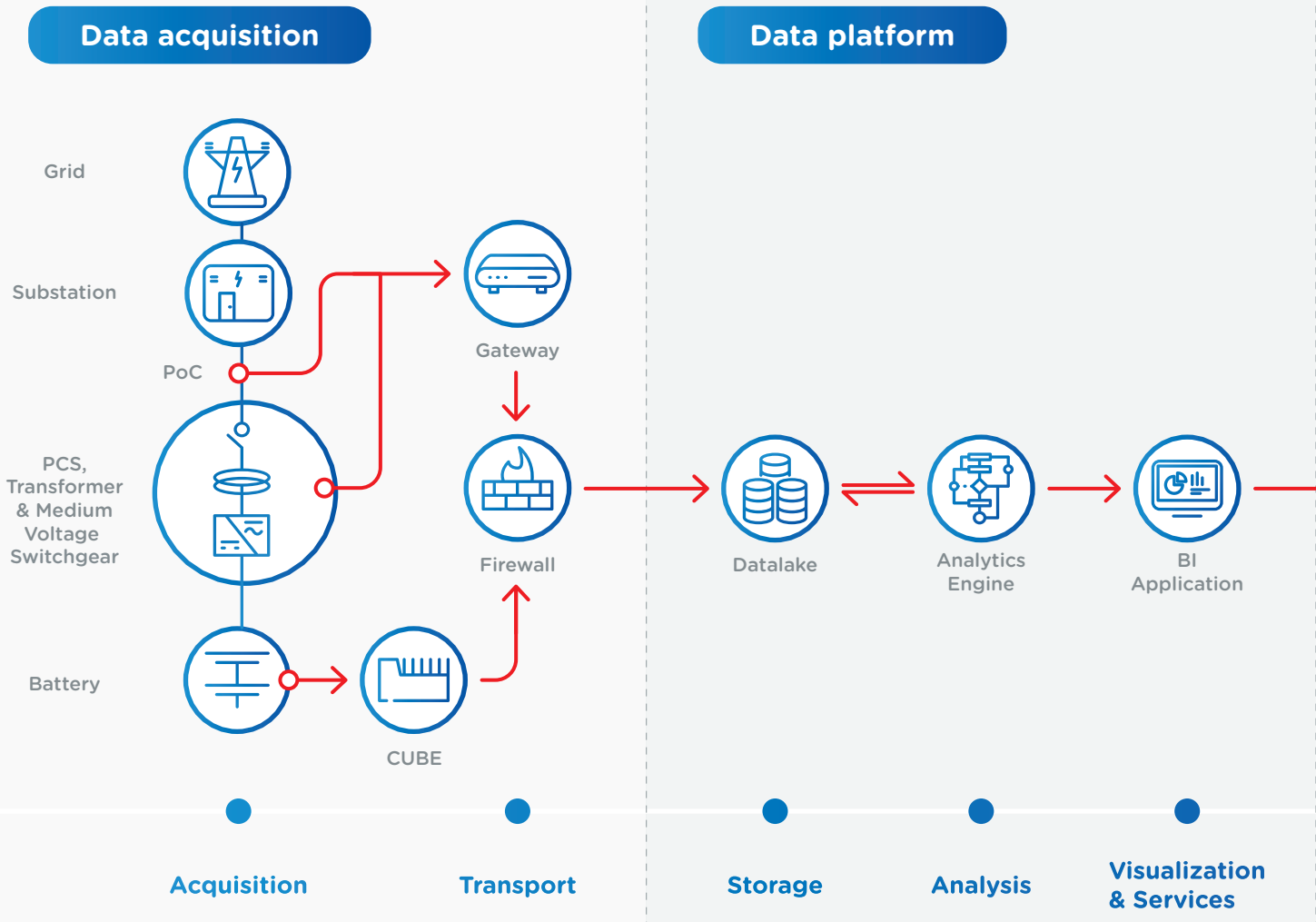
Benefits

1. **Fast response time and increased system availability**
   - 24/7 remote monitoring and alarming
   - Predictive maintenance to detect and resolve technical issues before they impact operations
   - Optimized system operation
2. **Safeguard system performances ensuring storage asset economics**
   - Automated and remote performance guarantee management
   - Access to highly granular system data in real time at all system levels
   - Ageing prediction and anticipation of changing operation patterns
3. **Easy system integration and optimized architectures for large-scale ESS**
   - Straightforward interaction with Saft Intensium® Max battery containers and most PCS brands through a single gateway
   - Native interoperability with EMS and trading platform softwares
4. **Cybersecurity driven design**
   - Ensures data confidentiality, product integrity, availability and safety
   - Protects data, assets, people and revenue
5. **Artificial Intelligence and machine learning**
   - Enables digital twin for prediction and optimization of performances, operation and maintenance of a single system or across a complete fleet

Components & architecture of the supervision platform



Ensure high granular data acquisition of all system component groups

CUBE battery control unit:

- Enables massive paralleling of battery strings into large virtual batteries
- Local HMI providing functional management and monitoring of all battery components

Single gateway unit:

- Data from all DC + AC equipment
- Supporting flexible architectures
- Black box data recording

Data storage

Data analysis

Cyber security

Software and parameter updates

Functional modules of the user interfaces

User interfaces

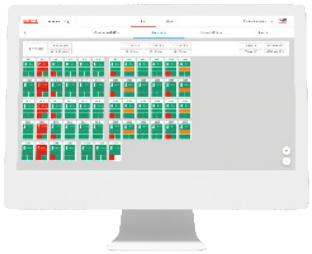
Users

Utilization

Viewer, Tracker, Fixer

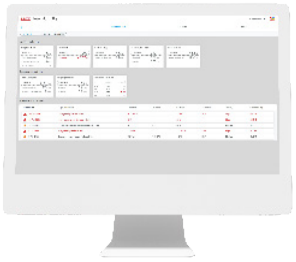
Enabling status monitoring, diagnostic, State of Charge balancing

Future proof functions including updates, upgrades and new services based on AI and machine learning



1 Viewer

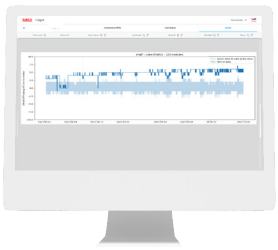
- **Live data:** metrics of Energy Storage System assets to monitor the system and the operations
- **Historical data:** specific data collected during battery operation with high granularity
- **Historical faults:** historic of enabled and disabled battery fault codes
- **Live auxiliary status:** status of auxiliary equipment such as fire safety system, HVAC, etc



2 Tracker

Automated performance guarantee management:

- Digital data crunching
- Optimized field service travel to customer site
- Remote and automatized diagnosis
- Daily monitoring of performance guarantee KPI's with alerts in case of deviations
- Remote battery storage performances testing:
  - Energy capacity (State of Health)
  - System efficiency (Round-Trip Efficiency)



3 Fixer

- **Predictive maintenance** based on AI and machine learning algorithms to detect weak signals of module outliers
- **Alerts & Alarms**
- **Trouble shooting**
- Optimized **maintenance planning** and field service travel to customer site
- Software and parameters updates

Visuals are not contractual and given as a guide only

Key technical specifications

System data	**Structured and granular data acquisition** ▸ High data granularity down to module level ▸ More than 10 millions data points sent to the Cloud per battery container and per day ▸ Data model structured along MESA standard **Flexible and secured data storage** ▸ Data storage duration in line with project lifetime up to 20 years ▸ Local data storage possible ▸ Redundant data storage possible ▸ Data sharable with customer/asset owner
Architecture	**Architecture compatible with multiple project configurations** ▸ Size from 1 MW up to several hundreds of MW ▸ Discharge duration from 1 to 8 hours ▸ Unlimited number of lineups **Simple integration adapted to project scope of supply** ▸ Compatible with most Power Conversion Systems and Power Management Systems ▸ Ability to integrate data from battery containers to grid connection point
Users	**Dedicated interfaces for defined user groups** ▸ Contract administrator ▸ Site operator ▸ Services team
Key metrics	**Customizable metrics based on project contract** ▸ System availability ▸ Energy throughput ▸ Round trip efficiency ▸ Ageing ▸ Auxiliary consumptions ▸ State of Charge
Notifications	Real-time alerts and faults Daily usage and performances metrics Notifications via email
Reporting	Yearly (monthly optional) reports Customizable structure and content
Fleet	Aggregation of multiple sites in different locations

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