

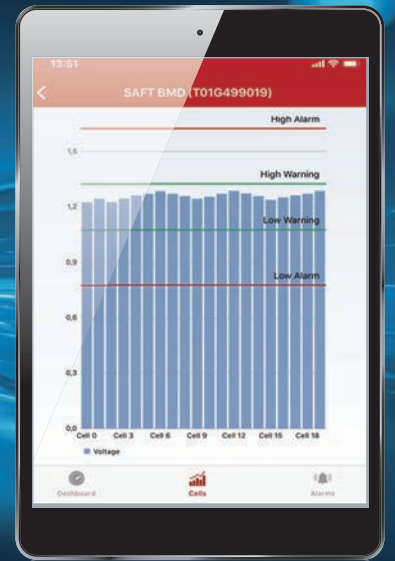
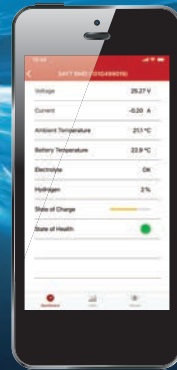
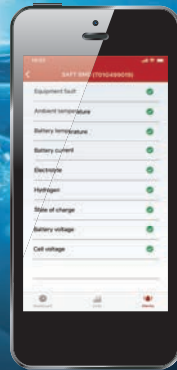
# SAFT

a company of



# Intelli-Connect™

Advanced remote battery monitoring solution  
for nickel battery technology



INDUSTRIES



UTILITIES



OIL & GAS



SIGNALING



saft  
voluntary  
compliance

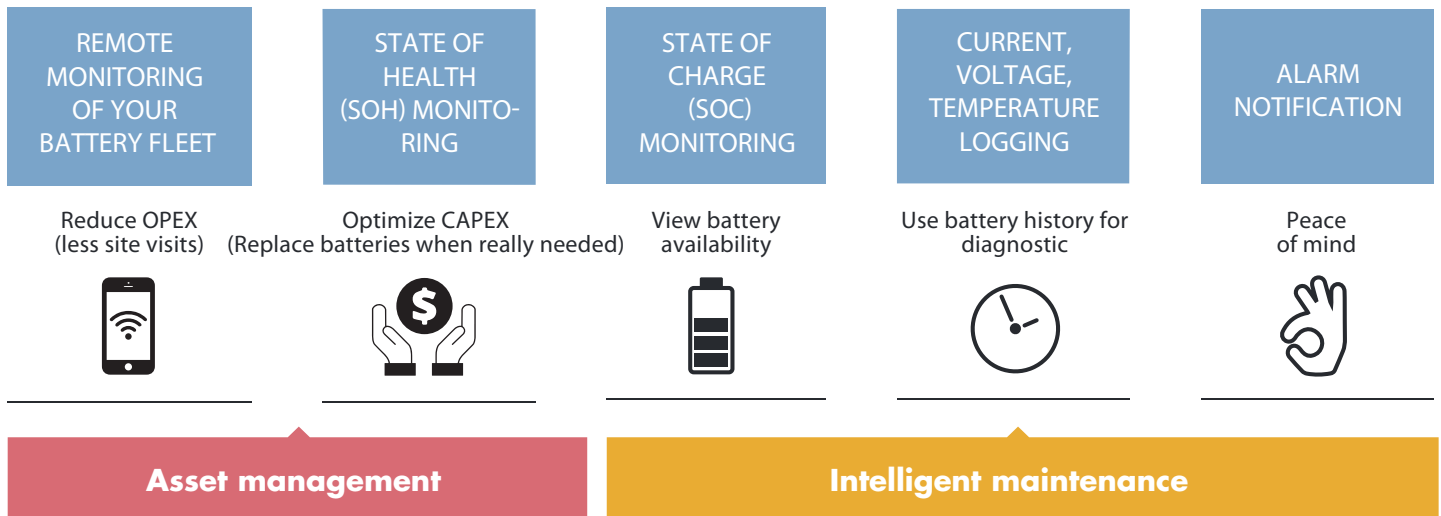


saft  
compliant



# Intelli-Connect™ main advantages

## Main benefits of Intelli-Connect™ monitoring solution



### A powerful monitoring solution

- Manages unlimited number of sites and batteries
- Ideal for scattered and isolated sites
- Can be connected to batteries from 12 to 600 V

## Intelli-Connect™ system overview

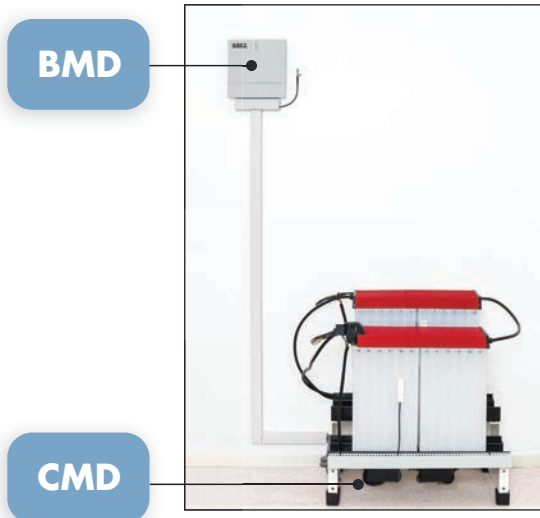
Measure battery data	Store & compute data	Display results
<p><b>Standard:</b> Voltage, current, temperature and electrolyte level</p> <p><b>Options:</b></p> <ul style="list-style-type: none"> <li>➤ Individual cell voltage</li> <li>➤ Hydrogen concentration</li> </ul>	<p><b>Data history management</b></p> <p><b>Calculation of:</b></p> <ul style="list-style-type: none"> <li>➤ State Of Charge (SOC)</li> <li>➤ State Of Health (SOH)</li> </ul>	<p><b>Display on all devices:</b></p> <ul style="list-style-type: none"> <li>➤ Laptop</li> <li>➤ Smartphone</li> <li>➤ Tablet</li> </ul>



# Intelli-Connect™ system & components

## Battery Monitoring Device

Measures all the battery parameters



## Cell Monitoring Device

Measures the voltage of the individual cells

## Current Sensor

Measures the current of the battery

## Voltage sensor (batt & indiv. cells)

Measures the voltage of the cell and the battery

## Battery Temperature Sensor

Measures the temperature of the battery

## Ambient Temperature Sensor

Measures the ambient temperature in the battery room

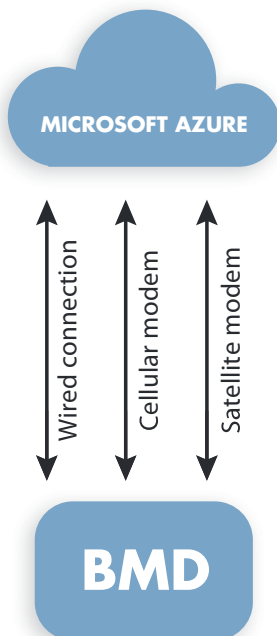
## Electrolyte low Level Sensor

Gives an alarm if the electrolyte level is too low

## Hydrogen content sensor

Measures the hydrogen gas concentration in the battery room

## A secure Cloud Solution



## Communication options:

- LAN connection (Ethernet)
- 2G/3G modem
- Satellite modem

## Highest data management standards:

### Security:

- Data encryption between the BMD and the Cloud (TLS protocol)
- Cyber security audit performed (ISO 27005)
- Recurring penetration tests by external testing company

### Data privacy:

- Customer can only access their own data

### Cloud solution:

- Microsoft Azure, used by major industrial high-tech companies such as Total

# Intelli-Connect™ user interface

Nickel technology batteries are reliable by design but if remote monitoring is needed Intelli-Connect™ solution offers high-performance remote access to your fleet of batteries.

You can easily access to Intelli-Connect™ user interface from any device: your desktop, laptop, tablet or smart phone.



2 user interface options:

❖ **Web App**

This application is used remotely from any location by customers and Saft experts. It visualizes battery parameters trending and historical data.

❖ **Local App**

This App is used by on-site technicians to easy access the status of individual batteries.

# Intelli-Connect™ key differentiators

A tailor-made solution developed by Saft battery experts

Designed by Saft, a world leading battery manufacturer with 100 years of experience in cutting-edge nickel technology.

A unique battery condition calculation

Saft's Intelli-Connect™ advanced State of Charge (SOC) & State of Health (SOH) proprietary algorithms have been designed by Saft battery researchers and are the legacy from 100 years of technology experience from the field.

## Unique support from Saft experts:

- › Technical advice
- › Application guidance
- › Remote diagnosis
- › Trouble shooting assistance

## Real time battery data trending:

- › Voltage
- › Temperature
- › Current



# Intelli-Connect™ technical data

## Battery information:

Battery voltage  
Battery current  
Battery temperature  
Ambient temperature  
State Of Charge (SOC)  
State Of Health (SOH)  
Electrolyte low level (option)  
Individual cell voltage (option)  
Hydrogen concentration (option)

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**Nominal battery voltage:** 12 V to 600 V  
**Max charge/discharge current:** 3000 A  
**Max no of temperature sensors:** 25  
**Max no of electrolyte sensors:** 24  
**Max no of cells per system:** 500

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## Communication interfaces:

Ethernet port  
2G/3G modem  
Satellite modem (optional)

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## Battery Monitoring Device

**Power source:** Powered by the monitored battery

**3 voltage variants:**

- 9 to 90 V (Low voltage version)
- 55 to 265 V (Medium voltage version)
- 160 to 750 V (High voltage version)

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## Cloud platform:

Microsoft Azure