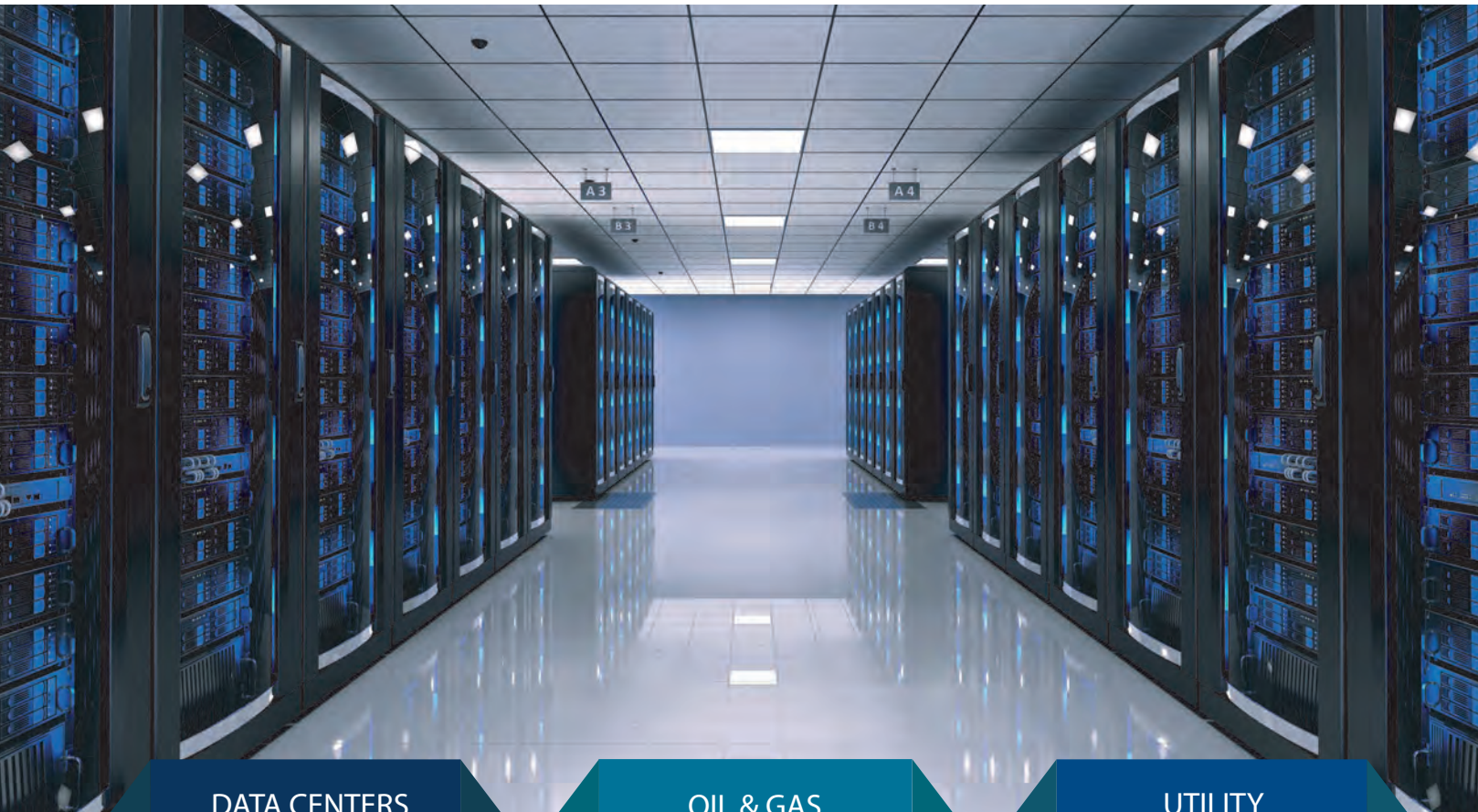




Flex'ion™ Li-ion Battery System

For Mission Critical Applications



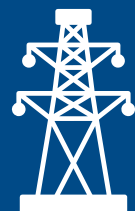
DATA CENTERS



OIL & GAS



UTILITY



UN 3480



saft
voluntary
compliance



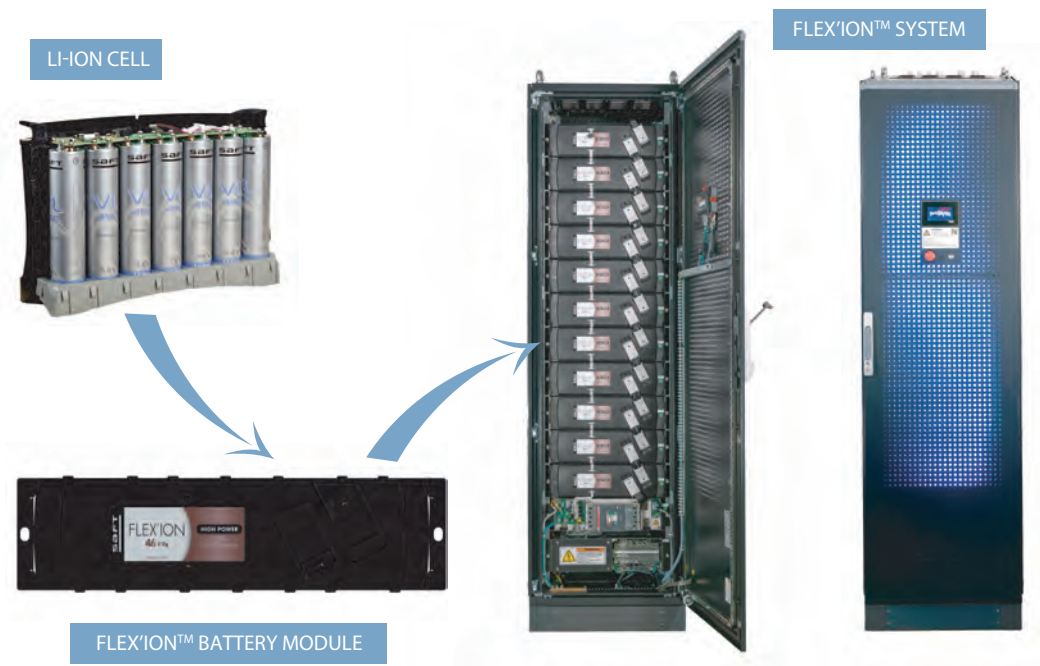
saft
compliant

Flex'ion™ main advantages

Main benefits versus VRLA lead-acid batteries

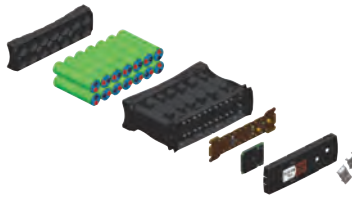


From cell to module and system



A WIDE RANGE OF COMBINATIONS:
From 1 to 500 kWh
From 10 kW to 2.3 MW
From 110 to 750 Vdc (CE) and 600 Vdc (UL)

Flex'ion™ system



Battery Module
Stores electrical energy ready for use during mains failure



BMM
Manages safety functions at string level



Intelli-Connect™
Allows string to discharge if charging is interrupted



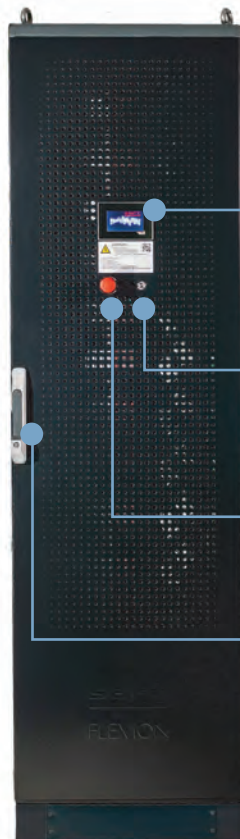
MBMM+PLC
Manages internal system-level & external communications



Cabinet
IP20, non-seismic or seismic



DATA REMOTE MONITORING
VISUALIZE HMI DATA ON A SMART DEVICE



HMI
Touchscreen display providing system information

LED Button
Controlled system start / stop & battery status

Battery-stop Button
Opens the main breaker in each string to isolate the battery system

Door Handle
Lever design & lockable

Flex'ion™ key differentiators

Dedicated structure to support your need

SHORT LEADTIME

US & EUROPEAN PRODUCTION



- ❖ Local support for engineering, services and after-sales
- ❖ Short lead-time thanks to US and European production
- ❖ Established recycling policy for a sustainable approach

Modular & scalable battery configuration

2-WIRE & 3-WIRE UPS

FLEXIBLE ARCHITECTURE



- ❖ Optimized configuration based on each load profile
- ❖ Supporting 2 and 3 wires (neutral / midpoint) UPS architecture
- ❖ Easily upgradable to support project extension

Mission critical design for maximum availability

BLACK-START FUNCTION

CONTINUOUS MONITORING



- ❖ Ability to discharge via Intelli-Connect™, even when the charging is interrupted
- ❖ Black-start function & continuous monitoring of the battery status thanks to self-powered system
- ❖ Fast recharge, right after a complete discharge, for highest system availability

Advanced lithium-ion technology

HIGH ENERGY EFFICIENCY

SUSTAINABLE & COST EFFECTIVE



- ❖ Saft's patented super phosphate chemistry (SLFP™)
- ❖ The best trade-off in terms of safety, power density and calendar life
- ❖ High operating temperature allowing less HVAC requirements and consumption

Smart monitoring & user-friendly data access

FRONT FACE HMI

DATA DIRECT ACCESS



- ❖ State of charge (SoC), state of health (SoH), temperature, alarms, etc.
- ❖ Multiple protocols embedded (Modbus, CanOpen, TCP-IP) for communication with UPS and/or building management system
- ❖ Data direct access via touchscreen HMI on the cabinet front face
- ❖ Remote access to battery information and remote troubleshooting ability

Flex'ion™ product range

5 sizes of cabinet answering your specific needs



| CABINET TYPE | 1 | 2 | 3 | 4 | 5 |
|---------------------------|-----------|-----------|-----------|-----------|-----------|
| Height (mm/inch) | 1300/51.2 | 1700/66.9 | 1900/74.8 | 2100/82.7 | 2300/90.6 |
| Width (mm/inch) | 611/24.1 | | | | |
| Depth (mm/inch) | 512/20.2 | | | | |
| Weight (kg/lbs) | 100/220 | 120/265 | 130/287 | 140/309 | 150/331 |
| Voltage (V) | 110/230 | 360 | 415 | 480 | 600 |
| Number of Modules (Up to) | 5 | 8 | 9 | 11 | 13 |

Cabinets available in seismic and non-seismic versions

| | | |
|-------------------------|----------------|---|
| COMPLIANCE TO STANDARDS | CE MARKING | 2011/65/UE 2014/35/UE EN 62477-1 2014/30/UE EN 61000-6-2/4 |
| | UL MARKING | UL1973 UL1998 UL991 UL94 V0 |
| | ENVIRONMENTAL | REACH compliancy and ROHS voluntary compliancy IEC 60068-2-1 IEC 60068-2-2 IEC 60068-2-6 IEC60068-2-11 IEC 60068-2-14 IEC 60068-2-21 IEC 60068-2-27 IEC 60068-2-30 IEC 60068-2-78 IEC 60721-3-12 IEC 61587-1 IBC 2016 CBC 2014 IEEE 693 Bellcore GR-63 |
| | SAFETY | IEC 61508 IEC 62619 FCC IFC 2012 §608 |
| | PERFORMANCE | IEC 62620 |
| | TRANSPORTATION | UN 3480 |

FURTHER INFORMATION

View Saft's Flex'ion video on Saft YouTube channel:
<https://www.youtube.com/watch?v=dD1lEexpwg>

Transportation Storage, Installation & Operating Guidelines:
<https://www.saftbatteries.com/products-solutions/products/flexion>

Battery Information Sheet (BIS)
<https://www.saftbatteries.com/products-solutions/products/flexion>

Flex'ion™ technical data



HIGH POWER

FLEX'ION 46 P Fe
46 Vdc - 28 Ah

MEDIUM POWER

FLEX'ION 46 M Fe
46 Vdc - 39 Ah

FLEX'ION 23 M Fe
23 Vdc - 78 Ah

| MODULE | General Characteristics | Proprietary Cell Chemistry | Super Lithium Iron Phosphate™ | | |
|--------|----------------------------|--|-------------------------------|----------------------|-----------------|
| | | Cell Type | VL30 PFe | VL41 MFe | |
| | | Module Type | Flex'ion 46 PFe | Flex'ion 46 MFe | Flex'ion 23 MFe |
| | | Voltage (V) | 46 | 46 | 23 |
| | | Capacity (Ah) | 28 | 39 | 78 |
| | | Energy (Wh) | 1294 | 1792 | |
| | | Width (mm/in) | 445 / 17.5 | | |
| | Mechanical Characteristics | Height (mm/in) | 131 / 5.2 | | |
| | | Depth (mm/in) | 292 / 11.5 | | |
| | | Weight (kg/lbs) | 18.5 / 40.7 | | |
| SYSTEM | Recharge Characteristics | Maximum Recharge Current (I) Intelligent Charging | 4C ₅ Ah | 2C ₅ Ah | |
| | | Maximum Recharge Current (I) Conventional Charging | 1C ₅ Ah | 0.5C ₅ Ah | |
| | | Recommended Recharge Current (I) | 0.2C ₅ Ah | 0.2C ₅ Ah | |

Maximum system discharge performance

