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Future-proof investment: Advanced Li-ion Batteries

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continuous power availability

LiFePOwer Batteries

SWISS MADE

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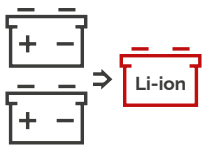
Li-ion batteries

The high power density of lithium-ion batteries means that more energy can be stored in a smaller area. This, combined with their light weight, makes lithium batteries an ideal solution for projects where space is at a premium.

Total cost of ownership is another major benefit of lithium-ion battery solutions. Extended battery life eliminates the need for multiple battery replacements over the life of the UPS. High operating temperatures lowers the investments in cooling, reducing the overall total cost of the system.

One of the major concerns with lithium devices is safety. At high temperatures, the chemical decomposition of most lithium-based storage devices generates O_2, increasing the risk of thermal runaway. $LiFePO_4$ chemical composition is the safest and most reliable li-ion battery solution available. $LiFePO_4$ can operate at higher temperatures without generating O_2.



Optimised footprint and weight

up to 70% smaller

up to 80% lighter

Reduced TCO

Extended LIFE

LOWER cooling needs

Highly safe

O_2 free at high temperatures

24/7 Battery monitoring

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Exceptionally flexible and scalable solution

Compatible with Centiel's 3-phase product family

Up to 3.6MW | Up to 15 battery cabinets

Centiel's LiFePOwer product range has been designed with flexibility and scalability in mind.

Each cabinet can accommodate 10 or 12 battery modules of **50, 100, 200 Ah and 50Ah high rating discharge**, achieving up to 122.8 kWh per frame.

Parallelable for up to 15 cabinets offering various configurations to achieve a flexible and scalable solution for all power protection requirements.

Centiel's Li-ion batteries are compatible with all Centiel's 3-phase Uninterruptible Power Supplies (UPS) and can be integrated into existing installations.

Both common and separate battery configurations are available for modular and parallel UPS systems. For redundancy at battery level, a separate battery system can be used to supply each individual unit or UPS module. In the event of a failure of one battery set, autonomy at full load can still be maintained.

The technology

LiFePOwer chemical reactions

LFP: $LiFePO_4$ —(Charging)→ $FePO_4$ —(Overcharging, 480°C)→ $FePO_4$ → O_2 free

Other batteries' chemical reactions

LMO: $LiMn_2O_4$ → $Li_xMn_2O_4$ —(180°C)→ $Mn_2O_3 + O_2$ →

LCO: $LiCoO_2$ → $Li_{0.5}CoO_2$ —(150°C)→ $LiCoO_2 + Co_3O_4 + O_2$ →

NMC: $LiCo_{1/3}Ni_{1/3}Mn_{1/3}O_2$ → $CoO_2 + NiO_2$ —(180°C)→ $NiO_x + Mn_3O_4 + O_2$ →

Thermal runaway

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Multi-level monitoring

Monitoring at a cell, module, and frame level provides a comprehensive view of battery health and runtime, increasing the reliability and safety of the system.

The Battery Monitoring System (BMS) incorporates both cell and module balancing controls to optimize the voltages and charging currents of each module, maximising performance and increasing service life.

Monitoring at frame level ensures clear visibility of the battery's status. Alerts and events are displayed on the unit and transmitted to external monitoring devices through various communication protocols.

Benefits

Flexibility
Various configurations and cabinet ratings

Adaptability
Easily integrated with existing Centiel installations

Redundancy in autonomy
Common or separate battery

Long lifespan
No need to replace at 3-5 years or 7-10 Years

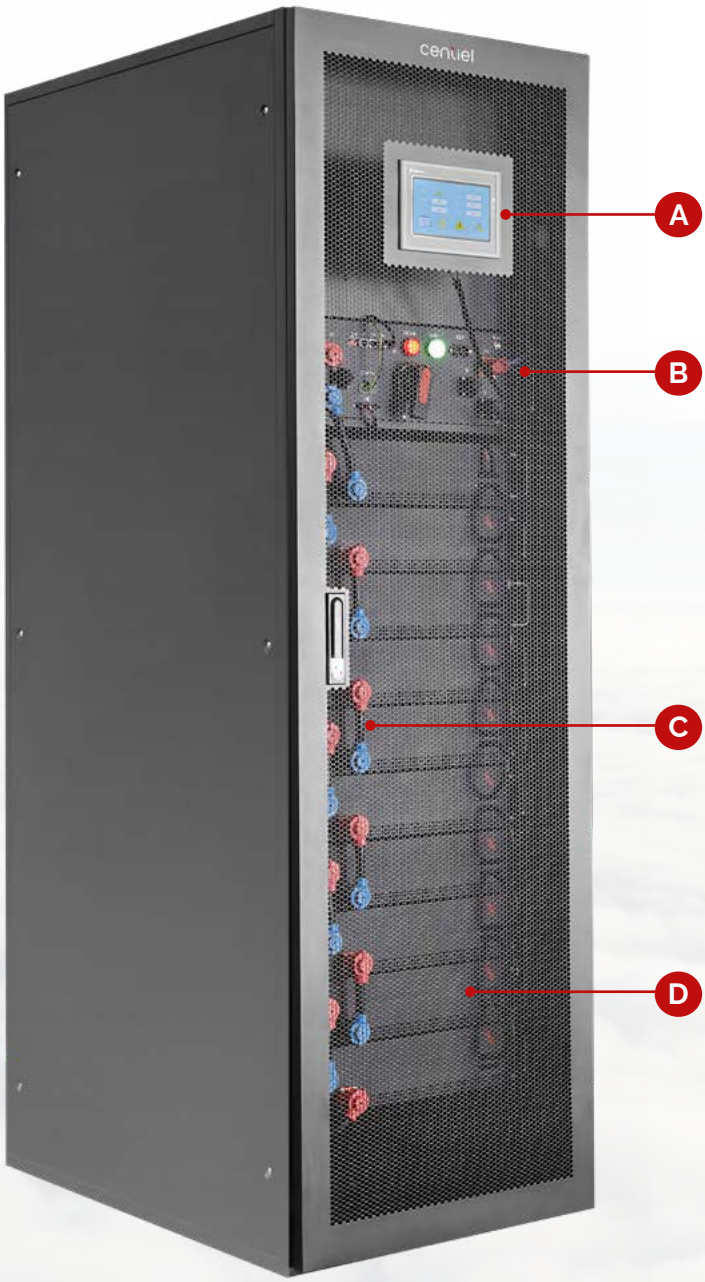
High operating temperature
Reduced cooling requirements

High power efficiency
Reduced operational costs

Reduced footprint
Up to 70% less than VRLA

Scalability
Ideal for redundancy or power upgrades

Service friendly
Front access for simple service and installation
In-frame frontal access DC battery line protection



A System monitoring

B Cabinet Battery Management System (CBMS)

C Connection links

D Battery modules

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Reduced risk and maximized benefits

- Fast battery recharge times
- Swappable battery modules
- Improved serviceability and installation
- Reduced maintenance of battery components
- No single-point of failure in communication with UPS between battery modules
- 24/7 monitoring
- Safest $LiFePO_4$ Li-ion technology with multi-level monitoring

Technical data

Model	KIT-LIB25-512V-050	KIT-LIB25-614V-050	KIT-LIB25HR-512V-050	KIT-LIB25HR-614V-050	KIT-LIB25-512V-100	KIT-LIB25-614 V-100	KIT-LIB20L-512V-200	KIT-LIB20L-614V-200
# of battery modules	10	12	10	12	10	12	10	12
Rated capacity (Ah)	50	50	50	50	100	100	200	200
Rated energy (kWh)	25.6	30.72	25.6	30.72	51.2	61.44	102.4	122.8
Nominal voltage (Vdc)	512	614.4	512	614.4	512	614.4	512	614.4
Operating temperatur	0 – 50°C							
Operating humidity	< 95% R.H.							
Weight (kg)								
Dimensions (WxDxH) mm	600x 1000x 2000	600x 1000x 2000	600x 1000x 2000	600x 1000x 2000	600x 1000x 2000	600x 1000x 2300	600x 1000x 2000	600x 1000x 2300
Colour	Black							

BRC_Li-ion_Rev1.0_05/24

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