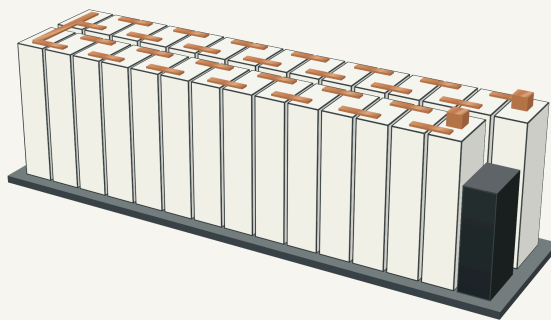


PCM-CAGE BATTERY PACK

Thermal control. Built into every module.

A 9.918 kWh modular lithium-ion pack with phase change material around every cell, buffering peak heat passively.



9.918 kWh Nominal energy	104.4 V Nominal voltage	95 Ah Nominal capacity
190 Wh/kg Specific energy	385 Wh/L Volumetric density	52 kg Pack mass

01

Absorb

As the PCM melts, it takes up the heat of a power peak right next to the cells.

02

Transfer

Collectors and the cage give stored heat a path towards the enclosure.

03

Recover

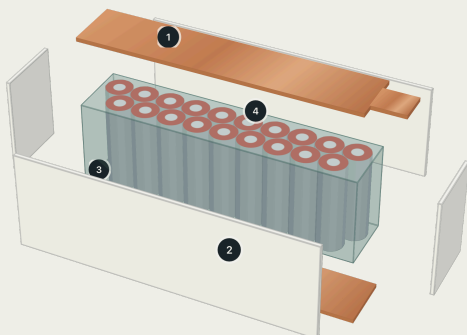
At low load and rest, the material solidifies again, ready for the next mission.



One module, one replaceable unit.

19 cells in parallel, surrounded by PCM48 and sealed in its cage.

INSIDE ONE MODULE



- 1 Copper collectors 2 Cage shell 3 PCM48 buffer
- 4 19 x 21700 cells

MEASURED / 240 A DISCHARGE

16.4 °C
lower peak.



Peak cell-surface temperature, 240 A continuous discharge (about 2.5C) at 28 °C ambient. One bench comparison of two 19P modules.

PACK

Configuration	29S x 19P, 551 cells
Operating voltage	72.5–121.8 V
Discharge	3C continuous, 8C peak
Power	30 kW continuous, 80 kW peak
Thermal management	PCM48 phase change material, ~48 °C
Dedicated cooling power	None: no fans or pumps in the module
Customisation	Voltage and energy to requirement
Maintenance	PCM-filled modules replaceable individually

CELL

Cell	Tenpower INR21700-50XG
Chemistry and format	Li-ion, 21700 cylindrical
Nominal capacity	5,000 mAh (minimum 4,950 mAh)
Nominal voltage	3.6 V
Charge / cut-off voltage	4.2 V / 2.5 V
Maximum continuous discharge	40 A (90 A with 75 °C cut-off)
Internal impedance	≤ 4 mΩ at 1 kHz, 30% SOC
Cell mass	75 g maximum

BATTERY MANAGEMENT

Battery management	ANT smart BMS
Series support	21S–30S programmable, configured 29S
Cell balancing	Passive, 180 mA
Protection	Short-circuit, over-current, temperature, over- and under-voltage
Temperature sensing	4 sensors, –40 to 125 °C
Metering and communication	Coulomb counter; CAN, RS485, TTL, Bluetooth

APPLICATIONS

Mobility · Robotics · Industrial equipment · Energy storage.
Demonstrated in a marine field trial in 2026.

TALK TO US

sales@lumian-storage.com

Technical white paper and integration brief at lumian-storage.com