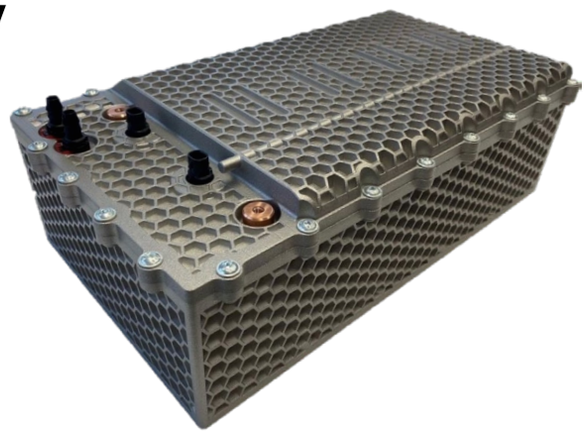
Datasheet

Immersion cooled battery „Pure Performance“



Super sports cars:
BEV, PHEV

High Power Demands:

Features

Innovative Cooling Technology

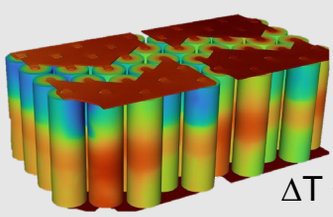
- Modular design for homogenous temperature distribution
- Minimal temperature gradient within cell
- Maximized active cooled contact surface - ~38cm²/cell in current design and setup

Superior Safety Characteristics

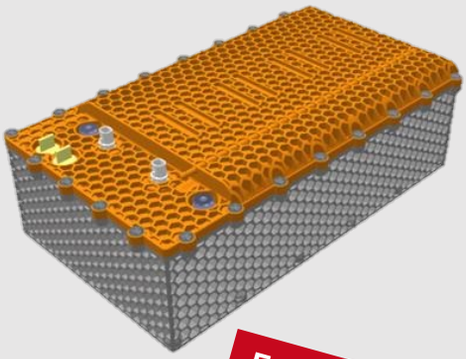
- Cells immersed in dielectric and heat-absorbing coolant reducing propagation risk
- Single cell fuse reduces propagation from internal short circuit
- Small cell releases much smaller thermal energy in case of failure

Ultra fast charging & discharging

- Based on 21700 cell due to superior energy density, cost and broad set of cell suppliers (prepared for 46xx)
- Immersion cooling allows high continuous loads
- BMS to monitor and blance based on Singel Cell Module with EIS (Electrochemical Impedance Spectroscopy)



ΔT < 3,5K

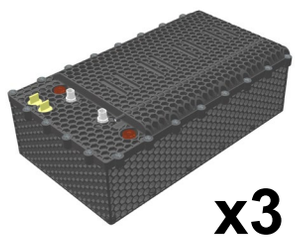


Functional samples available soon

Parameter	Unit	Value	
Configuration (Modules x Cells)		18S10P	36S5P
Battery Cell Chemistry		agnoistic	
Nominal Voltage	V	64,8	129,6
Nominal Capacity	Ah	45	22,5
Nominal Energy	kWh	2.9	
Nominal specific Energy	Wh/l	>320 Wh/L	
Nominal grav. Energy	Wh/kg	>160 Wh/kg	
Max. Pulse Discharge Power 10s	kW	53	
Max. Pulse Charge Power 10s	kW	45	
Dimensions	mm	369x216x122	
Weight filled with Oil	kg	< 18.4 kg	

Configuration Example

	400 V PHEV	800 V PHEV
# of Cells	540 (108s5p)	1.080 (216s5p)
# of Modules	3 (36s5p)	6 (36s5p)
Max. Discharge Power (10s)	~159 kW	~318 kW
Max. Charge Power	136 kW	272 kW
Energy	8.7 kWh	17.4 kWh
Voltage Nominal	389 V	778 V
Voltage Range	270-454 V	540-908 V



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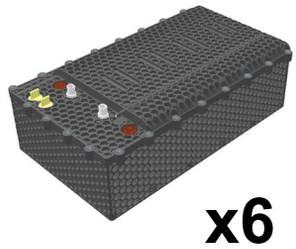

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Contact Info

sales@lionsmart.com

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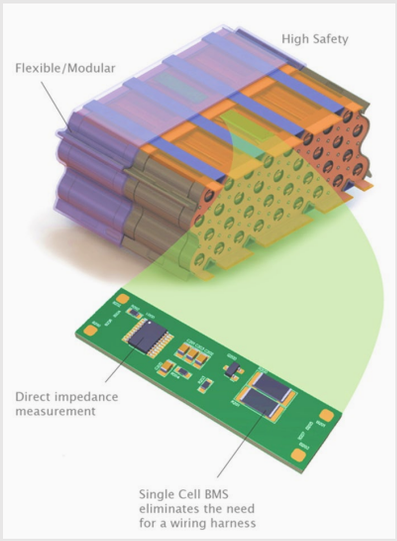
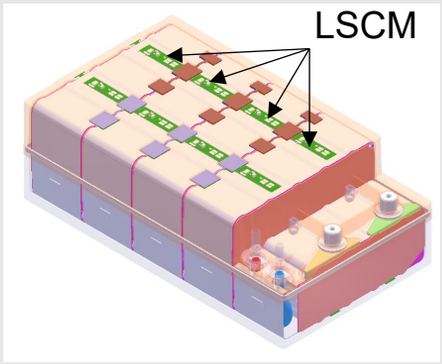
Single Cell BMS

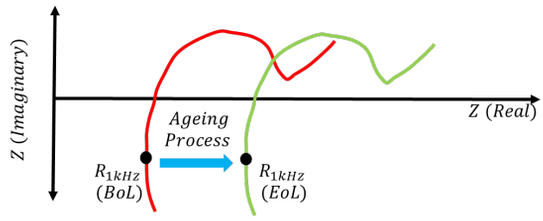


Impedance Measurement



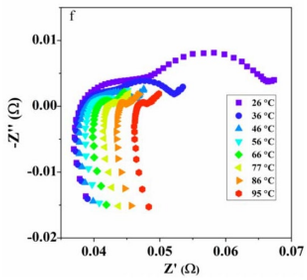
State of Health Calculation

- Direct measurement of the impedance at a defined frequency and more precise determination of the internal resistance
- **Advantage**: Direct measurement on the cell without external influences



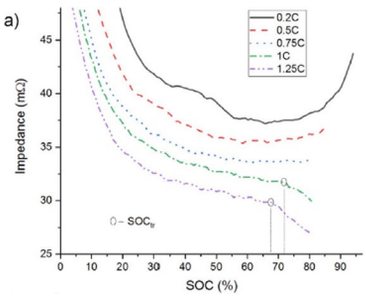
Thermal Runaway Detection

- Continuous monitoring of the impedance and immediate detection in the event of increased internal cell temperature
- **Advantage**: Faster detection, as the heat does not have to diffuse through the cell (and possibly busbar) first



Lithium Plating Detection

- Continuous monitoring of the impedance during charging
- **Advantage**: If there are deviations in the impedance during charging, the charging power is immediately reduced → Plating is prevented



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