PULSE 2.5 high-power battery module

Fast-charge system for all electric and hybrid transport

Transport is going all-electric, pushing the boundaries of battery systems' power.

Based on LTO prismatic cells, Forsee Power teams have specifically developed the Pulse 2.5 lithium-ion battery system to provide high power for fast charge.

SYSTEM HIGHLIGHTS

Li-ion battery system with unique power density

+ Power density: > 511 W/kg
+ High-power capability: 9 C peak, 5 C for 5 min
+ Scalable: modular system based on 2.5 kWh modules connected both in series and in parallel
+ Liquid thermal management
+ Best-in-class proprietary BMS technology
+ CAN bus protocol

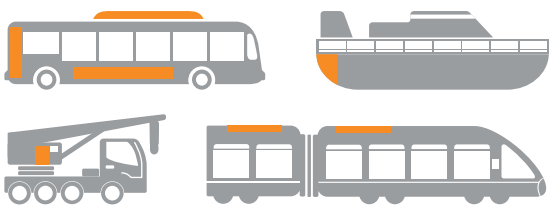
A complete battery system is made of:

+ 1 to 18 modules of 2.5 kWh each: 55 V to 990 V nominal
+ Battery Management Controller (BMC)
+ Power Distribution Unit (PDU)
+ Master BMS to manage several strings in parallel

BENEFITS

+ Robust and long-life span: up to 15 years
+ Homogeneous performance in all climate conditions
+ Compliant with automotive safety standards
+ Great safety and reliability
+ Optimized weight and volume for high vehicle's capacity

+ Designed to be easily integrated in various vehicles and geometries:



Pulse 2.5 high-power Li-ion LTO battery system

PHYSICAL SPECIFICATIONS	CONDITIONS	UNIT	# MODULES							
			1	2 to 9	10	11	12	13	14 to 17	18
VOLTAGE										
Minimal	-	V	36	...	360	396	432	468	...	648
Nominal	-	V	55	...	550	605	660	715	...	990
End of charge	-	V	65	...	650	715	780	845	...	1 170
ENERGY										
Energy	-	kWh	2.5	...	25	27.5	30	32.5	...	45
POWER										
Peak power in charge / discharge	pulse 10 s (4% DOD)	kW	22	...	220	243	265	287	...	397
Continuous power in charge / discharge	5 min	kW	11	....	110	121	132	144	...	199
Continuous power in charge / discharge	RMS continuous*	kW	8.8	....	88	97.2	106	115	...	159
CURRENT										
Peak current in charge / discharge	pulse 10 s (4% DOD)	A	400 (9 C)							
Continous current in charge / discharge	5 min	A	240 (5 C)							
Continuous current in charge / discharge	RMS continuous*	A	160 (3.5 C)							
DENSITY										
Specific energy	-	Wh/kg	58							
Energy density	-	Wh/L	88							
Power density	-	W/kg	511							
CYCLE LIFE										
Cycle life	100% DOD, 3C/3C		> 15,000 cycles							
MECHANICAL CHARACTERISTICS	-									
Volume		Liter	28.4	...	284.0	312.4	340.8	369.2	...	511.2
Weight		kg	43	...	430	473	416	559	...	774
Height		mm	129	depends on pack arrangement						
Width		mm	285							
Depth		mm	772							

@ 25°C | *RMS C rate: alternating charge and discharge for several hours of operations 24/7 DOD: Depth Of Discharge

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