

PHI HIGH-VOLTAGE BATTERY

CHEMISTRY	Lithium Ferro Phosphate (LFP), the safest Lithium Ion chemistry available — no cobalt, risk of thermal runaway or fire
SCALABILITY	Modular design scales to meet a range of configurations
BMS	Nuvation High Voltage Battery Management System & Stack Controllers
COMMUNICATION	Modbus TCP (Ethernet), Modbus RTU (RS-485), CAN, Sunspec / MESA



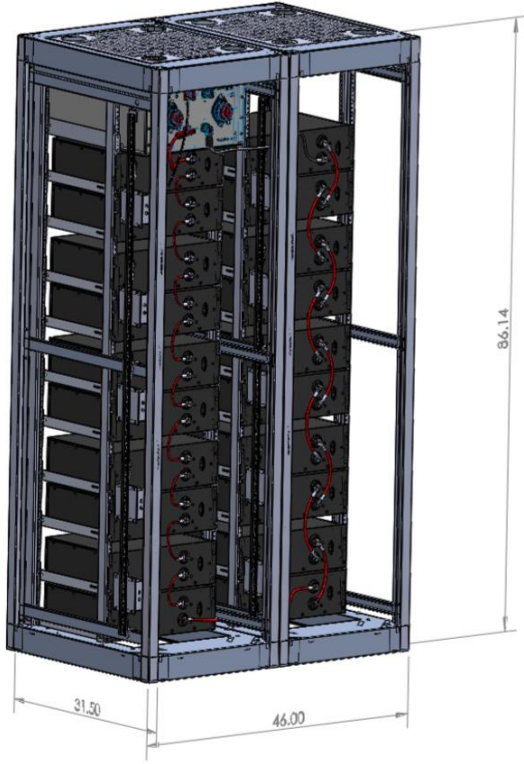
PHI High Voltage 3.6 kWh Module	24V	48V
DC Voltages - Nominal	25.6 VDC	51.2 VDC
Amp-Hours	144 Ah	72 Ah
MAX number of modules in series	34 (870.4 VDC nominal)	20 (1,024 VDC nominal)
kWh Capacity @ C/2	3.6 kWh DC @ 100% DOD 2.9 kWh DC @ 80% DOD	3.6 kWh DC @ 100% DOD 2.9 kWh DC @ 80% DOD
MAX Discharge Rate (10 minutes)	100 Amps DC (2.56 kW DC)	100 Amps DC (5.12 kW DC)
MAX Continuous Charge/Discharge Rate	72 Amps DC (1.84 kW DC)	36 Amps DC (1.84 kW DC)
DC Voltage Range ¹	24 VDC to 28 VDC	48 VDC to 56 VDC
Depth of Discharge ¹	up to 100%	
Operating Efficiency	98%	
Charging Temperature ¹	32° to 120° F (0° to 49° C)	
Operating Temperature ¹	-4° to 140° F (-20° to 60° C)	
Storage Temperature	6 months: 14° to 77° F (-10° to 25° C) 3 months: -4° to 113° F (-20° to 45° C)	
Self-Discharge Rate	< 1% per month	
Cycle Life	10,000+ cycles (@ 80% DOD)	
Memory Effect	None	
Warranty	10 Years or 10,000 cycles (@ 80% DOD)	
Weight	77 lbs. (33.5 kg)	
Dimensions (W x H x D)	17.6 x 6.1 x 15 in. (44.7 x 15.5 x 38.1 cm)	
PHI High Voltage Racking		
Module Quantity	10 High Voltage 3.6 kWh Modules per Rack	
Dimensions (W x H x D)	23 x 86.91 x 31.5 in. (58.42 x 220.75 x 80 cm)	
Nuvation High Voltage BMS		
Humidity	5 to 85%	
Operating & Storage Temperature	-14° to 140° F (-10° to 60° C)	

1. Max operating ranges. Refer to Warranty for recommended conditions.
- All specifications listed are typical/nominal and subject to change without notice.
 - UN 3480, Lithium ion batteries, 9, II
 - UL, CE, UN/DOT and RoHS compliant components - UL Compliant
 - Designed and manufactured in California, USA

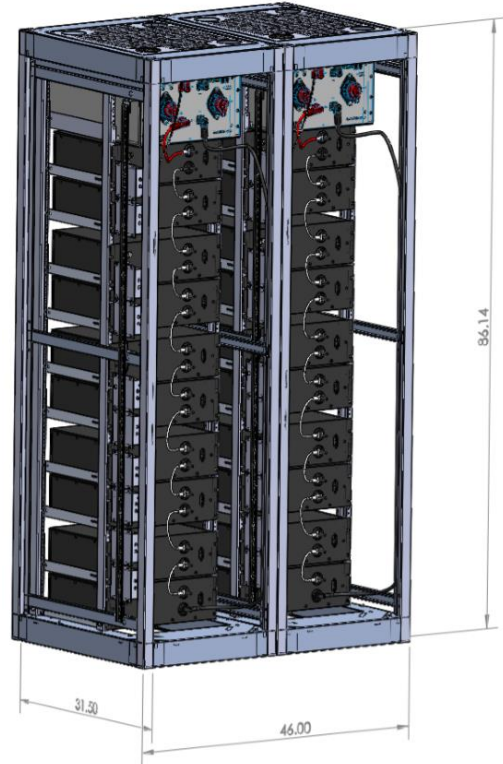
CERTIFIED
TO UL 1973

24V & 48V Architecture

512V - 64 kWh Solution
24V Modules (25.6V nominal)

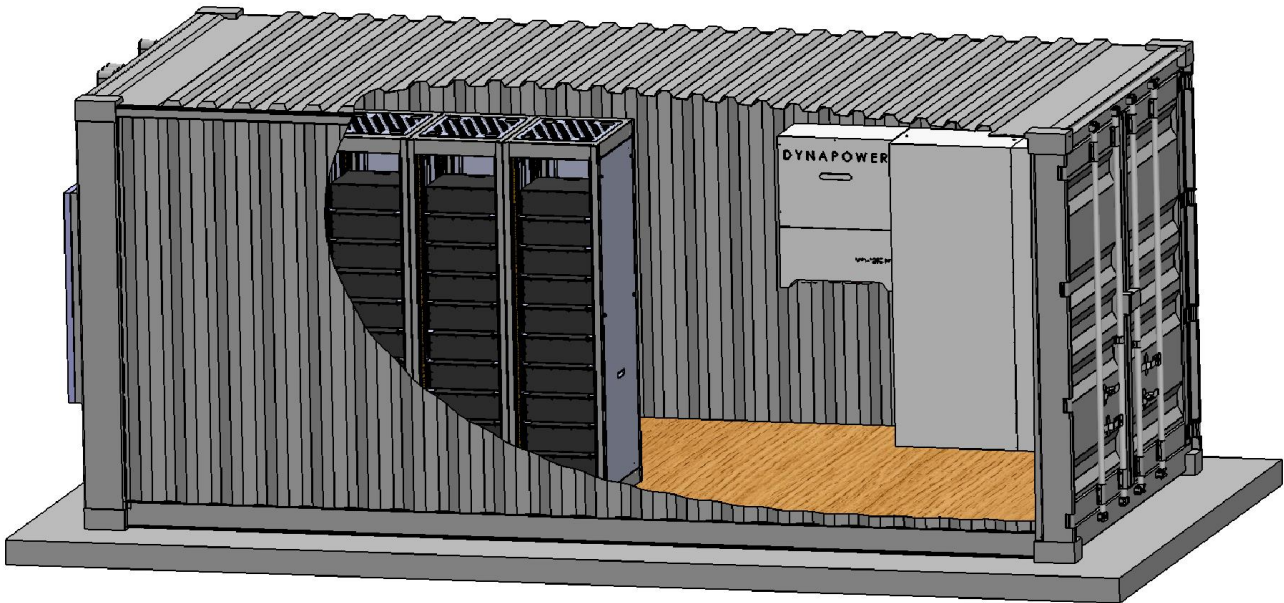


512V - 64 kWh Solution
48V Modules (51.2V nominal)



Containerized Solutions

Various container sizes available on request.



20' Containerized solution with Dynapower 125kW