			Title		
			Energy Storage System Specification (115kWh ESS)		
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AUTHORS	MC Kim	25 Nov 2017	A	P400-1005	0.0
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Energy Storage System Specification (Model : 115kWh)



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TITLE	SIZE	DOCUMENT NO.	REV
Energy Storage System Specification (50kWh ESS)	A	P400-1005	0.0
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1. Product Technical Specifications

Specific parameters for each of the 50kWh battery system blocks are detailed in the chart below

Parameter	Units	Specification	Note
Pack Cell Configuration:	each	2	P2 cells
Series	n/a	192	
Cells in Parallel	n/a	8	
Cell Voltage:			
Max	V	4.2	at 100% SOC
Nom	V	3.75	
Min	V	3.0	at 0% SOC
Cell Capacity:			
Rated	Ah	20	from cell specification
System Configuration:			
Cell Modules	Cell Modules	64	each cell module contains 24 cells (12s2p)
System Capacity (BOL):			
Theoretical	Ah	160	calculated based on cell capacity
Rated	Ah	166	estimated when C/3 rate is used to determine capacity; current taper applied at end of charge
System Capacity (EOL):			
Theoretical	Ah	112	estimated at 70%
System Voltage:			
Max	V	806.4	determined at maximum cell voltage
Nom	V	720	determined at nominal cell voltage
Min	V	576	determined at minimum cell voltage
System Energy:			
Theoretical	kWh	115.2	calculated value based on theoretical system capacity
Rated	kWh	119.8	calculated value based on rated system capacity
Usable (typical)	kWh	68	estimated energy between 20% and 80% SOC, de-rated specific to system application
Usable (max)	kWh	94	estimated energy between 8% and 90% SOC, de-rated specific to system application
System Discharge Power:			
Continuous	kW	57.6	at nominal system voltage (40A*720V)
Max	kW	576	at nominal system voltage (400A*720V)
Peak	kW	1152	at nominal system voltage (system/cell peak, duration less than 1s) : 800A*720V
System Charge Power:			
Continuous	kW	457.6	at nominal system voltage (40A*720V)
Max	kW	576	at nominal system voltage (400A*720V)
Peak	kW	1152	at nominal system voltage (system/cell peak, duration less than 1s) : 800A*720V
System Discharge Current:			
Continuous	A	80	continuous between 20% and 100% SOC, specific to system application
Max	A	800	continuous between 20% and 100% SOC (system maximum continuous)

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Parameter	Units	Specification	Note
Peak	A	1000	between 0% and 100% SOC (system/cell maximum surge, duration less than 1s)
System Charge Current:			
Continuous	A	80	continuous between 0% and 80% SOC, specific to system application
Max	A	800	continuous between 0% and 80% SOC (system maximum continuous)
Peak	A	1000	between 0% and 100% SOC (system/cell maximum surge, duration less than 1s)
System Mass	kg	1200	
System Shelf Life	years	5	continuous between 0% and 100% SOC
Cell Balancing	Type	Dissipative	BMS Temperature Diagnostics
Thermal Management	Type	Limit Controlled	BMS Current Limited above normal cell operating temperature
Operating Temperature/Humidity:			
Max	% RH	85	range (cell min/max)
Min	% RH	45	range (cell min/max)
Max	degrees C	55	range (cell min/max)
Min	degrees C	(-)20	range (cell min/max)
Storage Temperature	degrees C	(-)20 to 25 <1year	range (cell min/max)
Pre-Charge	Type	Internal	HV Load Capacitance protection
GFD	n/a	Enabled	BMS Isolated Diagnostics
EPO	n/a	Enabled	Emergency Power OFF (interlock)

Table 1 Product Technical Specifications

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2. Mechanical Drawings

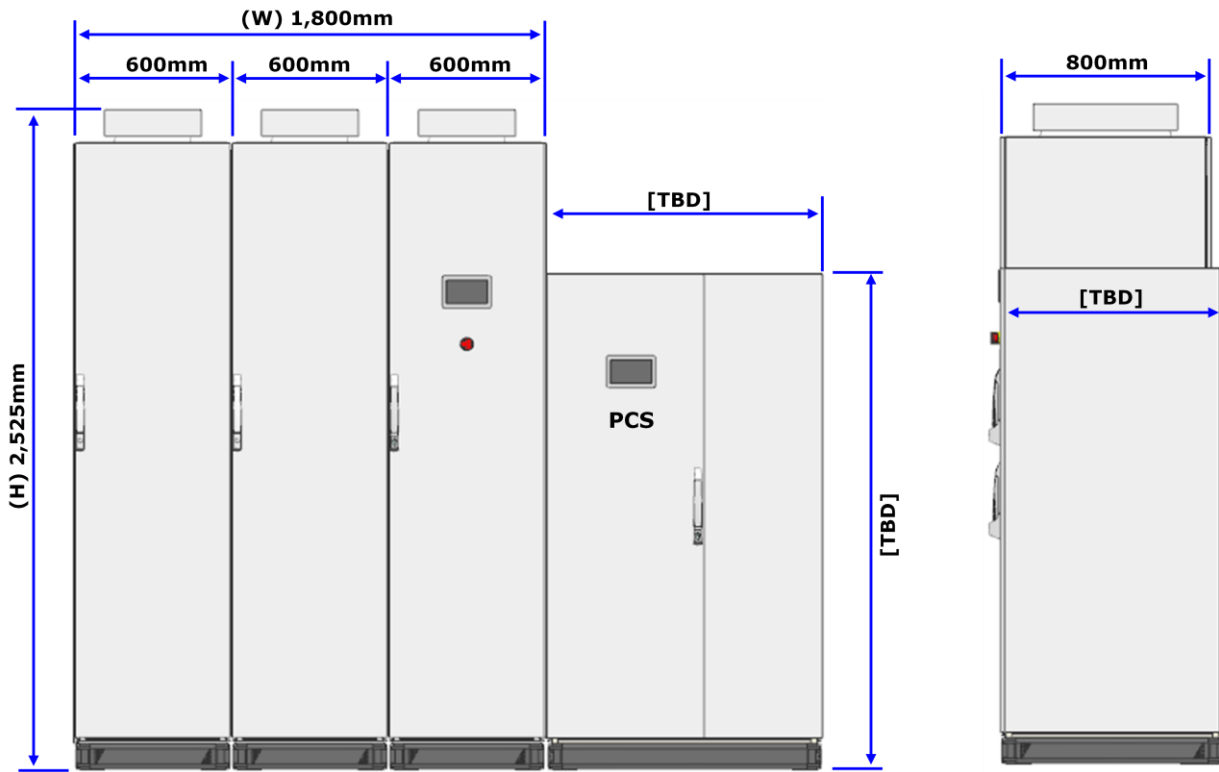
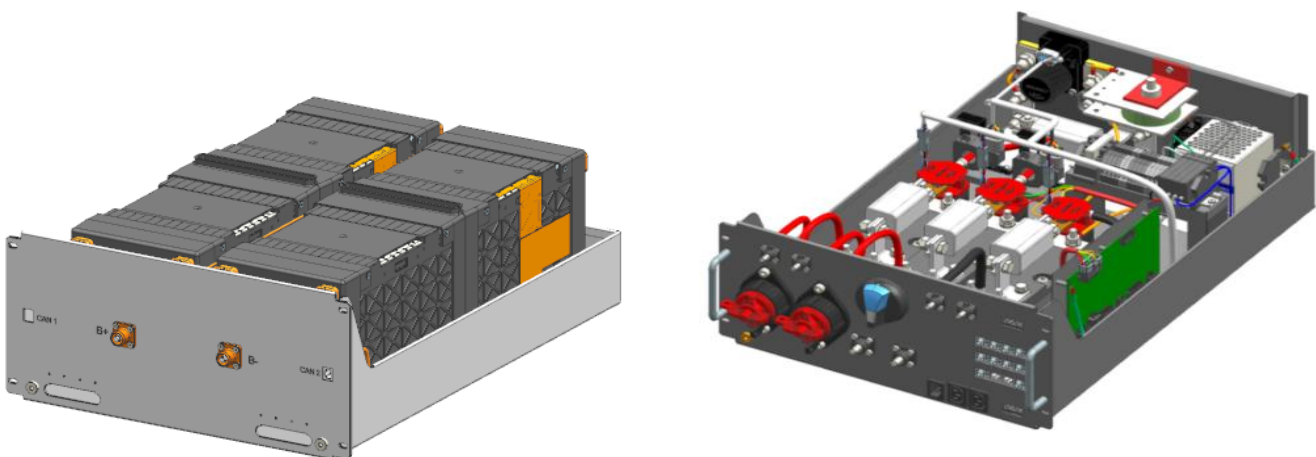


Figure 1 Rack drawing



Drawer drawing