Pylontech Proposal 50/100kW with 50~200kWh/352V

01 Project information

- Peak AC Load: 50~100kW;
- Solar power input: 50~200kWp;
- Off-grid application;
- Battery Capacity: 50~200kWh;
- Maximum 1 cycle per day;

System Diagram

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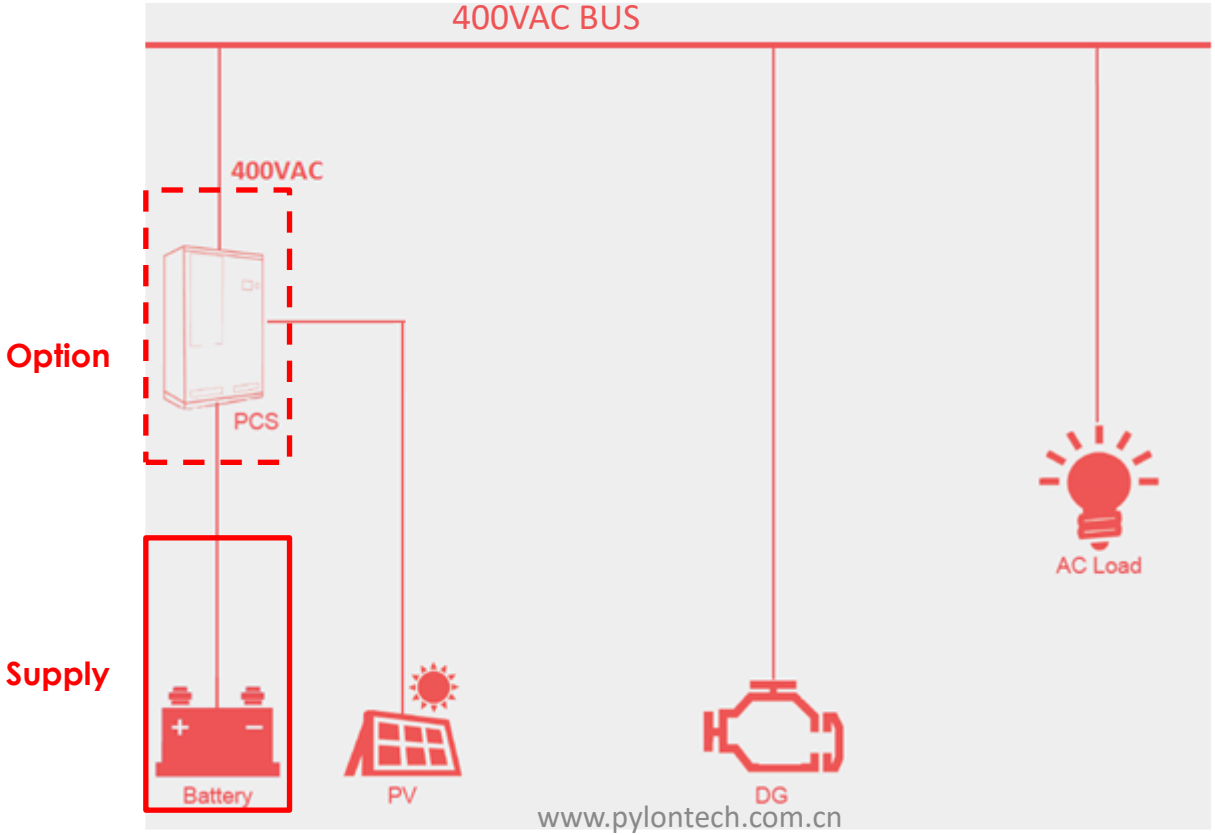
OFF Grid – AC Coupling



03

Configuration

PowerCube-10H System (1~2 racks)

Item	Model	Qty
Battery Energy Storage System (PYLONTECH)	**PowerCube-10H System (2 racks)**	**1set**
PCS (Sinexcel)	PWG2-50K/100K with STS module(400VAC 50Hz);	1set
EMS-A7	Local system control	1 set
Battery (PYLONTECH)	PowerCube-M1	2 racks
Battery MBMS (PYLONTECH)	MBMS1000	1pcs
UPS (EMERSON)	UHA1R-0020L	1pcs
Battery (PYLONTECH)	US2000	1pcs
Total Capacity	208kWh BOL	
Uable Capacity (90% DOD)	188kWh BOL	

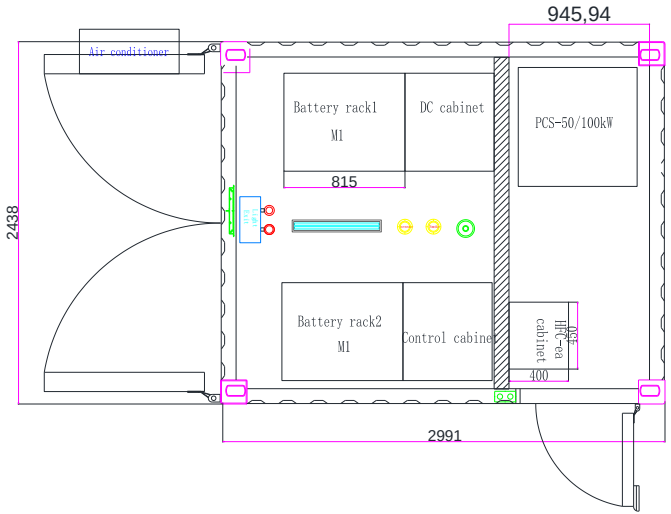
Configuration

PowerCube-10H System (2 racks) X 1set

Item	Product	Details	Description	Qty.	Total	Remark
1	Container	Container Case	To use a 10' inch standard High Cube container. It will be separated to two parts, one is power cabin, another is battery cabin.	1	1	
		Air-condition	3.5kW used in battery cabin	1	1	
		Fire fighting equipment	Seven fluorin propane gas in battery babin	1	1	
		Fire fighting controller	Controller for automation equipment	1	1	
		Entrance guard	Entrance guard system	1	1	
		Video surveillance	Video surveillance system for optional	1	1	
2	Battery system PowerCube-M1-352V/148Ah (52.096kWh each)	Battery rack	Each rack can 24 modules max	2	2	815W*659D*2130H; 24pcs modules max
		Battery module	32V148Ah module	44	44	One string is 11pcs battery modules.
		BMS	Battery controller (DC200-1000V)	4	4	Power from UPS;
3	DC Confluence cabinet	DC cabinet	Integrated 4 strings battery DC into one DC busbar for PCS	1	1	
4	Control System	Main control cabinet	Installation for monitoring system, EMS, MBMS, and UPS system.	1	1	19# standard cabinet
		UPS	UPS for BMS , MBMS, other monitor system	1	1	
		Battery module	Battery for UPS	1	1	
		MBMS	Main BMS	1	1	
		AC PDU	AC Power distribution unit	1	1	
5	Cables	External Power cable		4	4	
		External Communication cable		4	4	
		Battery module internal cable	Internal cable	4	4	
6	PCS	Sinexcel	PWG2-50/100K (400VAC 50Hz) with STS module；	1	1	
7	EMS	EMS-A7	Local system monitor, control.	1	1	

Container layout

PowerCube-10H System (2 racks)



Configuration

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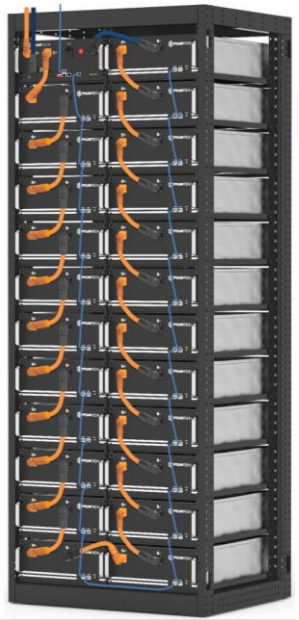
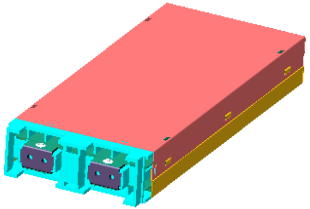
Battery Cell

BMS



Battery Rack

Racks



Battery Pack

Battery Module

Container

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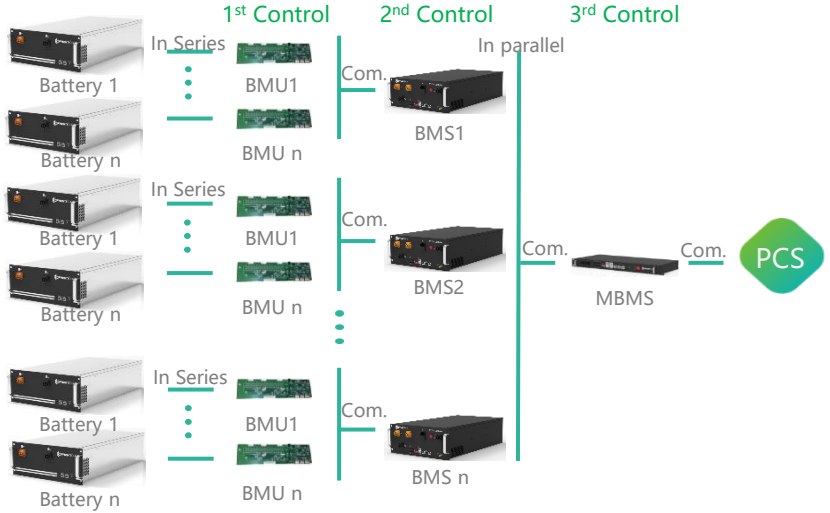
PowerCube-M1 Structure

BMS Structure diagram

Pylon adapt three level BMS structure(BMU, BMS and MBMS), MBMS will collect all battery BMS's situation and information, and communicate with PCS or/and EMS for good cooperation and better operation performance.

- Function
  - Cell Voltage
  - Cell Temperature
  - Current
  - SOC&SOH
  - Isolation
  - Communication
  - Warning & Alarms
  - Balancing



08 Model Selection

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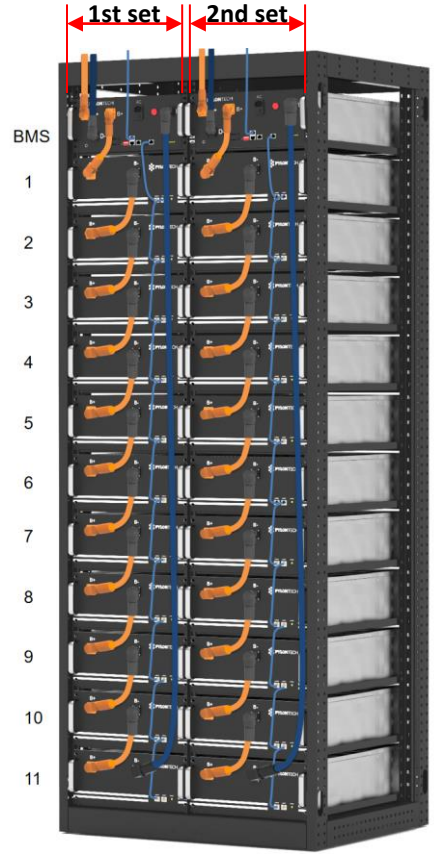
Battery System: PowerCube-M1 (11 battery modules)
2set per Rack



No.	Product Type	POWERCUBE-M1 11 modules 352V148AH
1	Cell Technology	Li-ion(LFP)
2	Battery System Capacity(kWh)	52.096
3	Battery System Voltage(Vdc)	352
4	Battery System Capacity(AH)	148
5	Battery Controller Name	SC1000-200
6	Battery Module Name	H32148
7	Battery Module Quantity(pcs)	11
8	Battery Module Capacity(kWh)	4.736
9	Battery Module Voltage(Vdc)	32
10	Battery Module Capacity(AH)	148
11	Battery Module Cell Quantity(pcs)	10
12	Battery System Charge Upper-Voltage(Vdc)	396
13	Battery System Charge Current(Standard)	29.6
14	Battery System Charge Current(Normal)	74
15	Battery System Charge Current(Max.)	148
16	Battery System Discharge lower-Voltage(Vdc)	330
17	Battery System Discharge Current(Standard)	29.6
18	Battery System Discharge Current(Normal)	74
19	Battery System Discharge Current(Max.)	148
20	Efficiency	96%
21	Depth of Discharge	90%(5~95%)
22	Dimension(W*D*H, mm)	815*659*2130
23	Communication	RS485\CAN
24	Protection Class	IP20
25	Weight (kg)	651
26	Operation Life(Years)	10
27	Operation Cycle Life	3500
28	Operation Temperature(℃)	10~40
29	Storage Temperature(℃)	-20~60
30	Product Certificate	TUV, CE
31	Transfer Certificate	UN38.3

Model Selection

PowerCube-M1: 3rd Level Controller (MBMS) MBMS1000

No	Product Type	MBMS1000
1	Nominal Voltage	12Vdc
2	Communication Terminal	CAN*2/RS485*2/Ethernet*2
3	Output Dry contact	4 groups
4	Input Dry contact	2 groups
5	TF Memory card	64G
6	Self-comsuption Power	5W
7	Dimension(W*D*H,mm)	442*190*44
8	Protection Class	IP20
9	Weight(kg)	3.5
10	Operation Life	15
11	Operation Temperature(℃)	-20~65
12	Storage Temperature(℃)	-40~80

Model Selection

Emerson UPS: UHA1R-0020L

Parameters		Product model			
		UHA1R-0020	UHA1R-0020L	UHA1R-0030	UHA1R-0030L
Model rating		2000VA/1800W	2000VA/1800W	3000VA/2700W	3000VA/2700W
Input AC	Voltage range (typical)	220Vac nominal; variable based on output load			
	100% loading	176Vac/280Vac			
	50% ~ 100% loading	120Vac ~ 176Vac, linear increase			
	Power factor	0.99			
	Frequency	40Hz ~ 70Hz; Auto Sensing			
	Input plug	IEC 320 C20			
Output AC	Output receptacles	C13 × 1 and 3 × 250Vac/10A GB output receptacles		C13 × 1, 1 × 250Vac/10A GB output receptacles and 1 ×250Vac/16A output terminal block	
	Voltage	220/230/240Vac (user configurable); ±3%			
	Power factor	0.9			
	Frequency	50Hz or 60Hz; ±0.1Hz			
	Waveform	Sine wave			
	Mains (AC) mode overload	105% to 150% for 60s; 150% to 200% for 2s; >200% for 250ms with transfer to bypass			
Battery	Type	Valve-regulated, sealed, lead-acid battery			
	Qty × V× Rating	4 × 12V × 9.0Ah		6 × 12V × 9.0Ah	
	Battery Mfg/Part#	Panasonic/UP-RW1245 CSB/ HR 1234W F2			
	Back-Up time	Refer to *Appendix 1 Battery Cabinet*			
	Recharge time	3 Hours to 90% capacity after full discharge with 100% load till UPS auto-shutdown (Internal Batteries Only)			
Environmental	Operating temperature	+32°F to +104°F (0°C to +40°C); variable based on output load			
	Storage temperature	+5°F to +122°F (-15°C to +50°C)			
	Relative humidity	0%RH to 95%RH, non-condensing			
	Operating elevation	Up to 10,000 ft. (3000m) at 104°F (40°C) without derating			
	Storage elevation	50,000 ft. (15000m) maximum			
	Audible noise	< 48dB, at 1 meter from the rear; < 48dB, at 1 meter from the front or sides	< 50dB, at 1 meter from the rear; < 48dB, at 1 meter from the front or sides	< 48dB, at 1 meter from the rear; < 48dB, at 1 meter from the front or sides	< 50dB, at 1 meter from the rear; < 48dB, at 1 meter from the front or sides
Agency	Safety	CCEE（GB4943-1995）/GB4943			
	RFI/EMI	IEC/EN/AS 62040-2 2nd Ed =CISPR22 Class A			
	Surge immunity	IEC/EN-61000-4-5, endurance level 3 (2kV) (live line to earth), level 2 (1kV) (during live lines)			
Dimensions (D × W × H, mm)	Unit	500 × 430 × 85	500 × 430 × 85	600 × 430 × 85	600 × 430 × 85
	Shipping	647 × 607 × 270	647 × 607 × 270	747 × 607 × 270	747 × 607 × 270
Weight (kg)	Unit	24	10	28	12
	Shipping	28	14	32	16

11 Model Selection

Battery: US2000

Basic Parameters	US2000
Nominal Voltage (V)	48
Nominal Capacity (Wh)	2400
Usable Capacity (Wh)	2200
Dimension (mm)	440*410*88.5
Weight (Kg)	24
Discharge Voltage (V)	45 ~ 54
Charge Voltage (V)	52.5 ~ 54
Recommend Charge/Discharge Current (A)	25
Max. Charge/Discharge Current (A)	50
Peak Charge/Discharge Current (A)	100A@15sec
Communication	RS232, RS485, CAN
Working Temperature	0℃~50℃ Charge
	-10℃~50℃ Discharge
Shelf Temperature	-20℃~60℃
Certification	TÜV / CE / UN38.3
Design life	10+ Years (25℃/77℉)
Cycle Life	>4,500 25℃

Model Selection

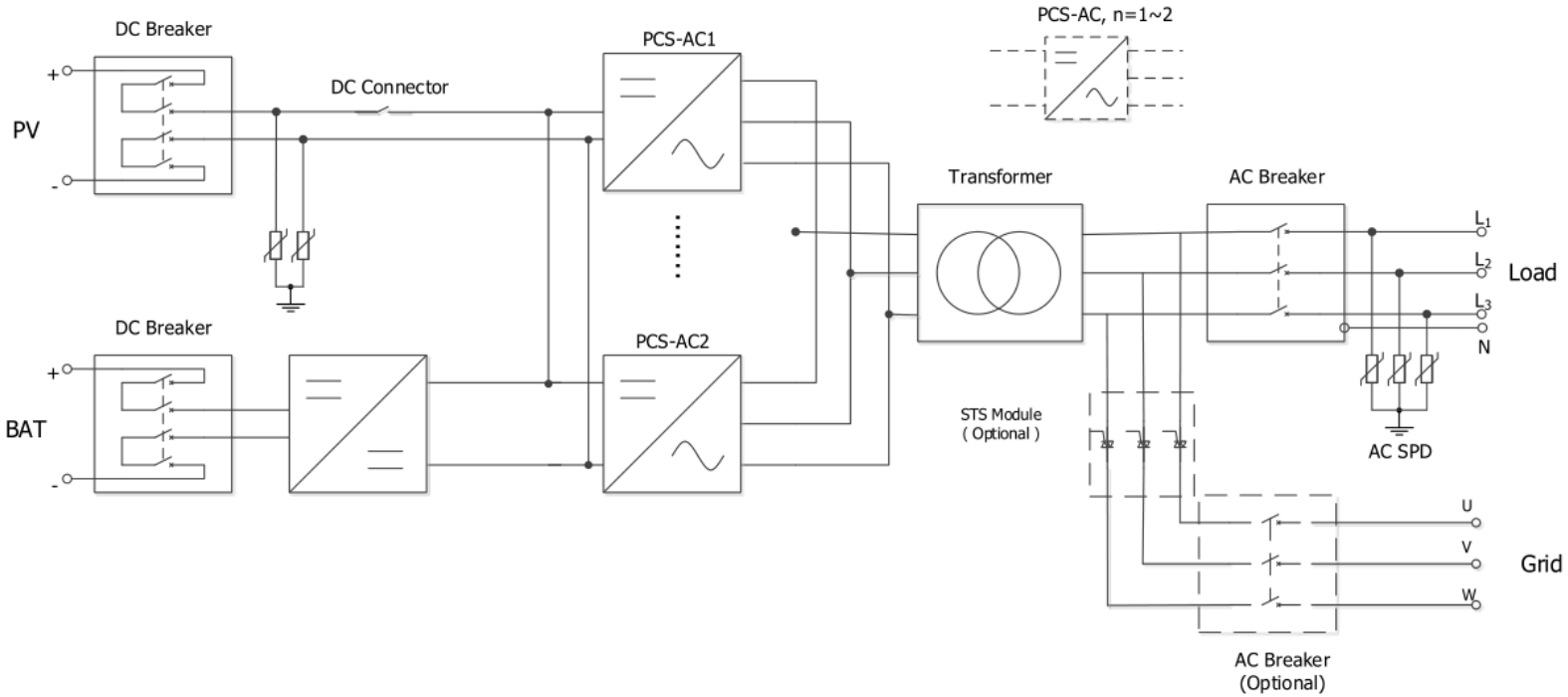
PYLONTECH

Sinexcel PCS: PWG2-50/100K

Specification

Model	PWG2-50K-NA	PWG2-100K-NA	PWG2-50K-EX	PWG2-100K-EX
Utility-interactive Mode				
Battery voltage range	400V(250~520V)		400V(250~520V)	
Batter DC Max Current	150A	300A	150A	300A
PV Voltage Range	520~900V (MPPT 520V~800V)		520~900V (MPPT 520V~800V)	
PV DC. Max Current	192A	384A	192A	384A
AC voltage	480V(423V~528V)		400V(340V~460V)	
AC current	60A	120A	72A	144A
Nominal power	50kW	100kW	50kW	100kW
AC frequency	60Hz(59.5Hz~60.5Hz)		50/60Hz(±2.5Hz)	
Output THDI	≤3%	≤3%	≤3%	≤3%
AC PF	Listed: 0.8~1 leading or lagging (Controllable)		Listed: 0.8~1 leading or lagging (Controllable)	
	Actual: 0.1~1 leading or lagging (Controllable)		Actual: 0.1~1 leading or lagging (Controllable)	
Stand-alone Mode				
Battery voltage range	250~520V		250~520V	

13 PCS diagram



EMS reference

EMS: Local controller

Pylontech, The Force Awakens