

Home Energy Storage System

Project Proposal V1

An gui

2020.08.07

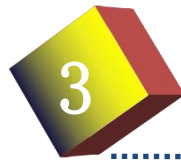
Version	Update Record	Date	Apr
V0	根据初步信息，搭建方案	2020.07.21	An gui
V1	Update to English Version	2020.08.07	An gui



Customer Information



Project Proposal



Development Cycle

1、 Customer Information

Product AC 176-264V, with battery;10 hours after power failure.They are 2000, 3000, 4000, 5000W single machine products, output single channel 220-240VAC package.The load is with air conditioner and electric fan

2、 Project Proposal—Product introduction

Introduction:

Adopts LFP chemistry battery with safety performance and long life time ,which offers you four capacities to meet your more requirements.

It have very good feature As bellow :

- (1) Compact size & Light weight
- (2) High power output & Usable energy system
- (3) Modular design & Expandable system
- (4) Safest battery & Perfect compatibility
- (5) Natural Cooling & Easy Installation



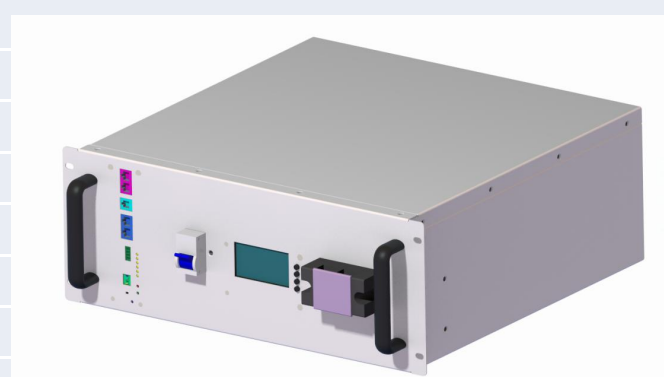
2、 Project Proposal—Cell introduction

Items		Specification description
Basic information	Battery Type	LiFePO4
	Nominal Voltage [V]	3.2
	Nominal Capacity [Ah]	100
	Nominal Battery Energy[kWh]	0.32
	Max Continues Output Current [A]	100
	Maxi Continuous Charge Current[A]	100
	Net Weight [Kg]	2.3
	Working Voltage[V]	2.5~3.65
	Operating Temperature range[°C]	Charging:0°C ~ 50°C; Ddischarging: -20~55°C
	Cycle life	4000



2、 Project Proposal—Module introduction

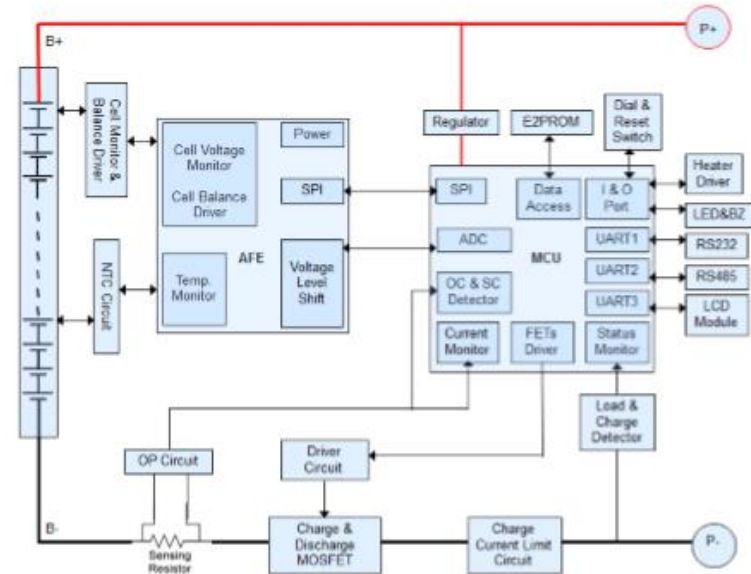
	Items	Specification description
Basic information	Battery Type	LiFePO4
	Nominal Voltage [V]	51.2
	Nominal Capacity [Ah]	100
	Nominal Battery Energy[kWh]	5.1
	Minimum Battery Energy[kWh]	4.9
	Max Output Power[kW]	5.0
	Max Continues Output Current [A]	50
	Maxi Continuous Charge Current[A]	100
	Limiting current[A]	20A, Software startup
	Net Weight System[Kg]	43
	Dimension of Cabinet[mm]	482/19 inches/W×177.5/H×460/D
	Working Voltage[V]	43.2~58.0
	Operating Temperature range[°C]	Charging: 0°C ~ 50°C; discharging: -20~55°C
	Communication	CAN/RS485
	Scalability[kWh]	Up to 70
	Heat Management	Natural Cooling
	Warranty	5 years
	Color	White
	Monitoring & protection	Each module has BMS
	Pros	Can be used both off-grid and hybrid setups, compact size, modular expansion, easy installation
Certification & Safety Standard	/	



2、 Project Proposal—BMS introduction

The BMS have all functions which are:

- over charge detection function
- over discharge detection function
- over current detection function
- short detection function
- temperature detection function
- balance function
- communicate function
- alarm function
- total capacity function
- storage history function
- LCD



2、 Project Proposal—Reverse control all-in-one machine

The product is a new type of integrated hybrid solar energy storage inverter control machine integrating solar energy storage & utility charging energy storage and AC sinusoidal wave output. It adopts DSP control and advanced control algorithm, and has the characteristics of high response speed, high reliability and high industrial standard.

Product features

- Digital voltage and current double closed-loop control, advanced SPWM technology, output pure sine wave.
- Municipal power bypass, inverter output two kinds of output mode, with uninterrupted power supply function.
- Solar power, municipal power, solar power, hybrid charging.
- Advanced MPPT technology, efficiency up to 99.9%.
- Wide MPPT voltage range, 120-450V.
- No electricity, batteries, solar energy has a separate function with load.
- With solar energy and AC power activated lithium battery function, support lead-acid battery, lithium battery access.
- LCD design, 3 LED indicator lights, dynamic display system data and status.
- ON/OFF boat switch controls AC output.
- With energy-saving mode function, reduce no-load loss.
- With intelligent adjustable speed fan, high speed heat dissipation, delay system life.
- With a number of protection functions, 360° comprehensive protection.
- With complete short circuit protection, over-voltage protection, overload protection, reverse irrigation protection, insulation impedance protection, etc.



2、 Project Proposal—Reverse control all-in-one machine

Items	Specification	Items	Specification	Items	Specification
Ac Mains Mode		Peak Power	10000VA	PV operating voltage range	60-145Vdc
Rated Input Voltage	220/230Vac	Output short circuit protection	Breaker	MPPT voltage range	60-115Vdc
Voltage Range	170-280Vac / $\pm 2\%$	By-pass circuit breaker	63A	Battery voltage range	40-60Vdc
Frequency	50Hz/60Hz	Rated voltage input	48V	maximum power output	4200W
Overload short circuit protection	Breaker	Battery voltage range	40-60Vdc	Solar maximum charging current	0-80A
Transfer Efficiency	>95%	Ac Mains Charging Mode		Other Information	
Transition Time	10ms	Max Charge Current	60A	Specification authentication	CE (EN62109)
Ac backirrigation protection	Y	Charging current error	$\pm 5\text{ADC}$	EMC Certification level	EN61000.C2
Maximum bypass current	40A	Charging voltage range	40-58Vdc	Operating Temperature range	-15-55
Inverter Operating Mode		Overload short circuit protection	Breaker , AC63A	Storage Temperature	-25-60
Output Voltage Waveform	pure sine wave	Solar Charging Mode		Cooling way	Forced air cooling
output Rating (VA)	5000	Maximum open circuit voltage	145Vdc	Communication	USB/RS485/WiFi
output Rating (W)	5000	PV Voltage Range	60-145Vdc	Net weight (kg)	13.5
Rated Output Voltage (Vac)	230Vac				
Overload Protection	102% load < 125% $\pm 10\%$, alarm and shut down after 5 minutes				

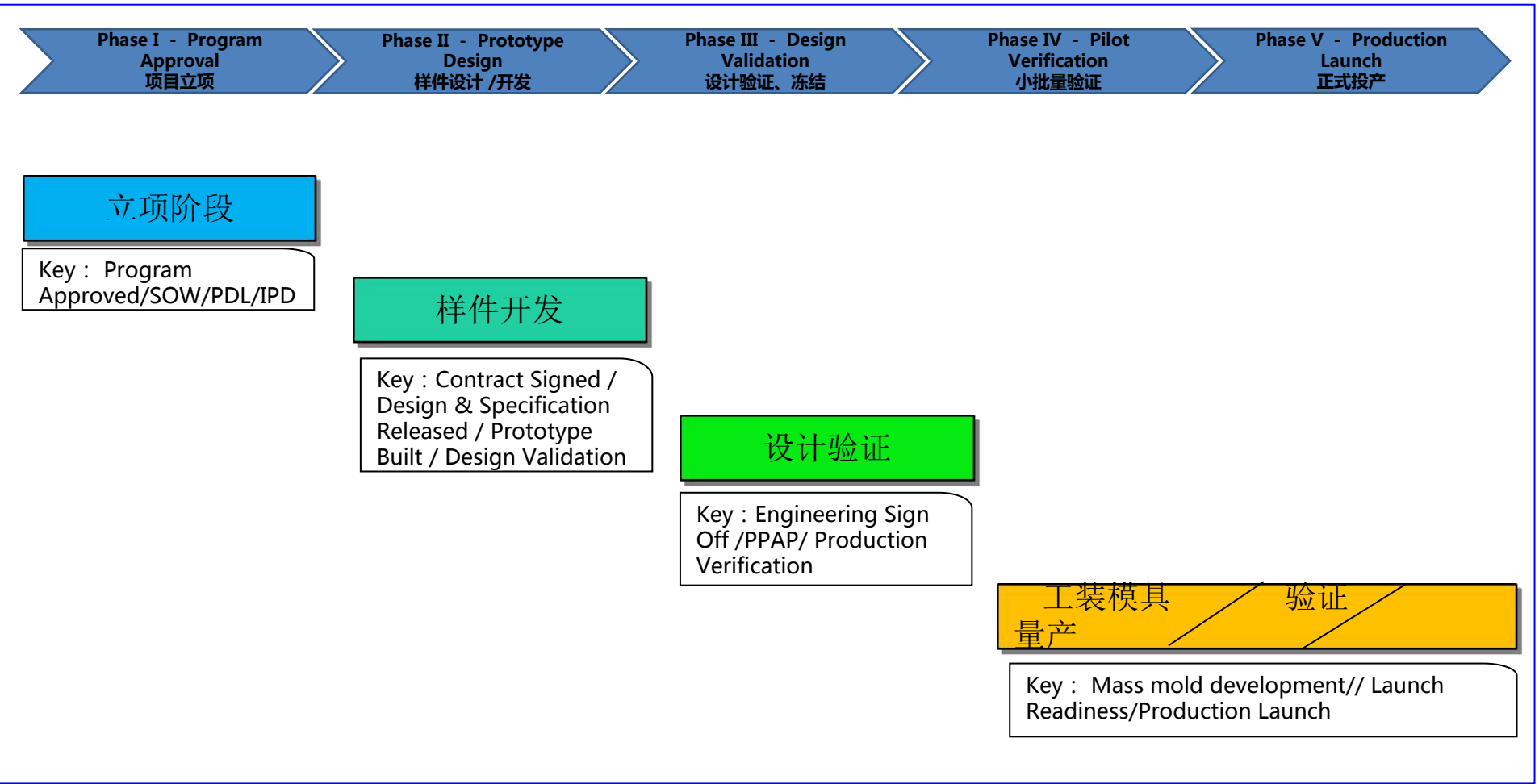
2、 Project Proposal—Product List

Items	HESS-Powerbox-5.0	HESS-Powerbox-10.0	HESS-Powerbox-15.0	HESS-Powerbox-15.0
Nominal Capacity [Ah]	100	200	300	400
Nominal Voltage [V]	51.2	51.2	51.2	51.2
Working Voltage[V]	40-58	40-58	40-58	40-58
Module QTY	1	2	3	3
Nominal Battery Energy[kWh]	5.1	10.2	15.3	20.4
Max Output Power[kW]	5	5	5	5
Inverter Power[kW]	5	5	5	5
Communication	CAN/RS485			
System Net weight[kg]	Approximately: 105	Approximately: 140	Approximately: 185	Approximately: 230
Mechanical Boundary[mm]	D600×W600×H1200mm			
Operating Temperature range[°C]	Charging: 0° C ~ 50° C; discharging: -20~55°C			
Installation Type	Indoor			



•Configure different power requirements by increasing the number of battery modules.

4、Development Cycle



- Refer to EV battery system development process management.
- Integrate Product Development.

Thanks!