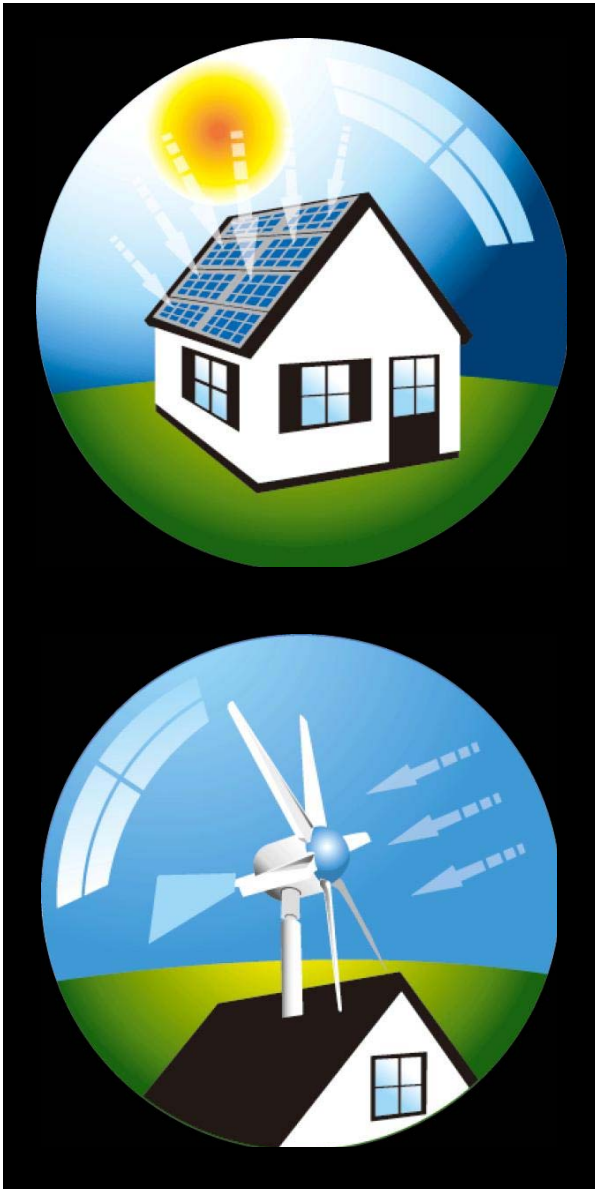


Solar & Wind Power Energy Storage Bank



Make The Dream Of Green Power Come True

Energy Bank is a multifunctional power storage system, through system integration we can improve the usage of work space and more efficiently manage the power generation from solar PV and wind turbine.

Energy Bank integrates cutting edge LiFePO₄ battery technology. Providing long cycle life, large capacity, high performance, light weight, compact size and high security. The most important is its feature of zero emission and eco friendly.



Solar & Wind power Energy Storage Bank



Support battery storage capacity more than 2KWh, with complementary solar, wind and grid power supply.

Multiple applications support Off Grid/ On Grid system. In addition to the general power supply, Energy Bank can be also used as an emergency backup power.

Design Concept

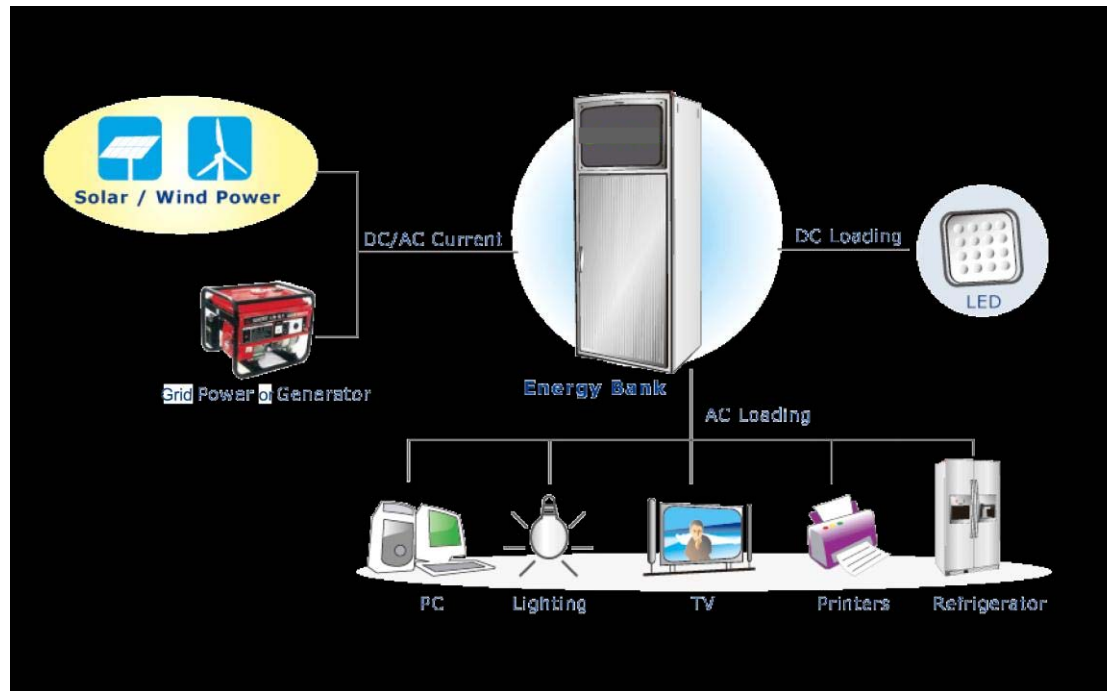
- ✓ Comply with commercial application.
- ✓ Integrated AC overload detect & circuit leakage breaker.
- ✓ Overall electronic equipments integration with ventilation cooling system.
- ✓ Strong housing resists to impact.
- ✓ High efficiency of conversion from solar power to battery storage.
- ✓ Free of wiring, User friendly.

Summary of Energy Bank

- ✓ Housing is made of aluminium and powder coating steel plate, the inhouse architecture is mainly composed of lithium iron battery pack, inverter, MPPT solar charger, system logger, digital meter, and LCD display screen.
- ✓ It can store the power generated by solar panels & wind turbine into batteries. Then through the Inverter transforms the DC power stored in batteries into AC power for electric appliances use.
- ✓ During the operation process, Logger and digital meters will capture the relevant readings, and display on the LCD screen for user reference.

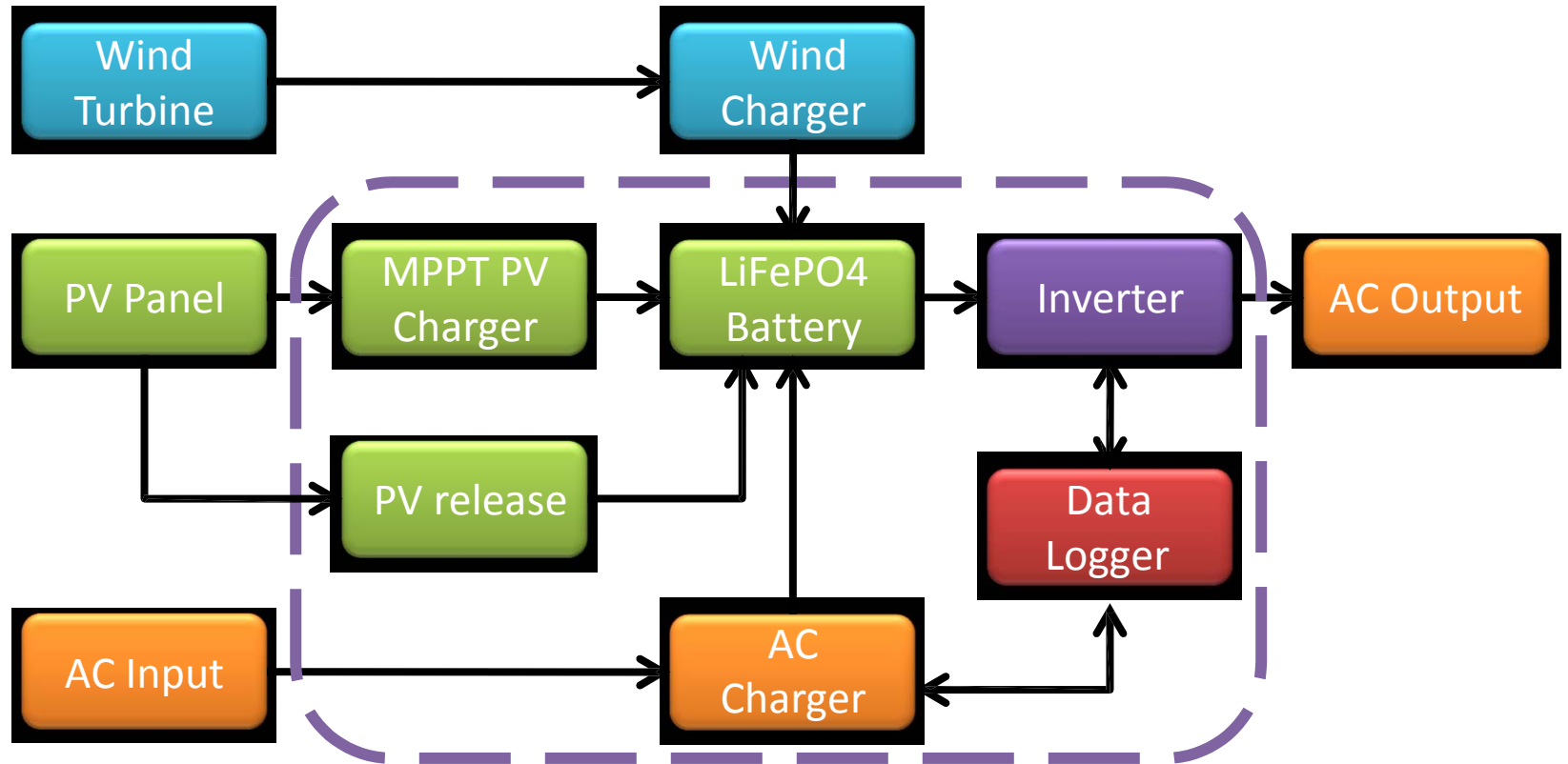


Smart Charging Mode



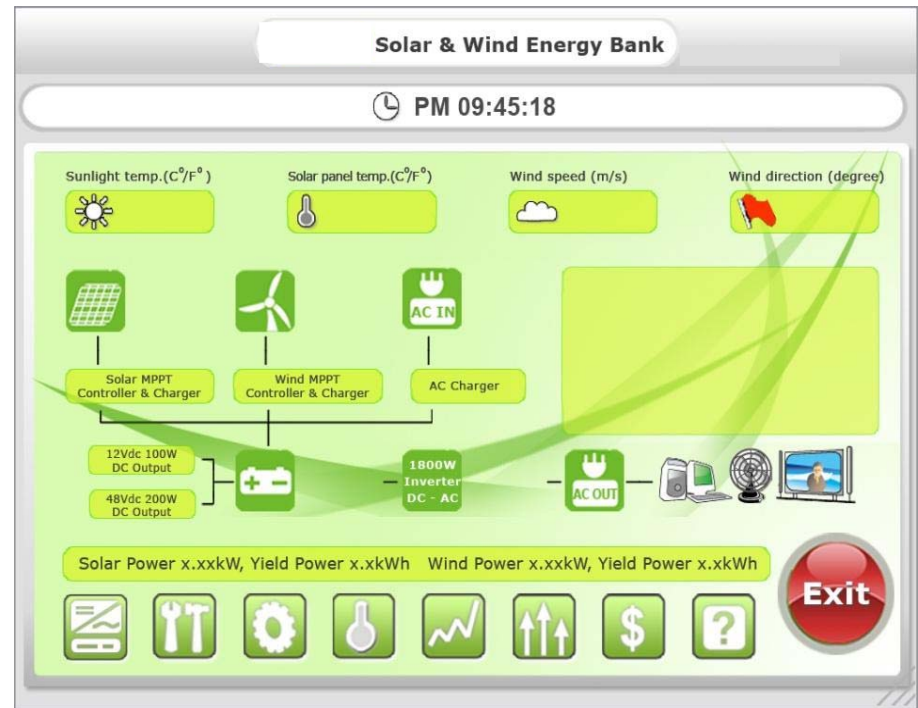
Energy Bank depends on solar or wind as the main power sources, if more than one source cannot provide enough power, and the battery capacity is lower than the setting, then the system will coordinate the Grid power become the main charge supply.

System Diagram



User Friendly Interface

- ✓ 15-inch LCD screen.
- ✓ Provide daily, weekly, monthly and annually electricity generation records for checking.
- ✓ Graphic illustrated battery SOC & SOH information.
- ✓ Provide remote monitoring through Ethernet network.
- ✓ Time switch provides auto off-peak charging, when battery capacity is low.



About Meters

Wind turbine power

Battery current

Solar power



Time switch

AC input power

AC output power

Components & Spec.

1. MPPT Solar Charger

Efficiency typical	96%
Input voltage	15V to 95V
Output voltage	Float 54V
Output power	1700W / 30A MAX
Quiescent current	0.05A
Thermal protection	Multilevel Type
Dimensions (mm)	185 x 145 x 67 mm
Indications	LED display – Output Status

2. DC/AC Inverter

Output	Rated Output Power	1500W
	AC Output Voltage	200 / 220 / 230 / 240VAC (Selectable by setting button.)
	AC Output Waveform	True Sine wave, THD < 3.0%
	Output Frequency	50±0.1Hz 50/60Hz (Selectable by setting button.)
	Max Output Power	1,725W for 3 min. / 2,250W for 10 sec.
	Output surge rating	3000W (30 cycles)
Input	DC Input Voltage	48V
	DC Input Current	37.5A
	Efficiency	91%
Input Protection	Batt. Low vol alarm.	45V ±4%
	Batt. Low Vol shutdown.	42V ±4%
	Reverse Polarity	Internal Fuse.
Output Protection	Over Temperature	Power off and re-power on to recover ; By internal RTH3 detect on heat sink of power transistor。 (68℃±5℃)
	Short Circuit	Shut down output voltage, re-power on to recover。
	Over Load	5 ~ 115% load for 180 sec., 115% ~ 150% load for 10 sec.
		Shut down output voltage, re-power on to recover。
AC Circuit Breaker	20A	
AC Charger	Charge Current	1.35A
	Charge Voltage	57V ±4%

3. System Logger

Management Comm.	Ethernet
Inverter Comm.	RS-232
Data Storage space	2Gbyte
Power consumption	36W
Operation Temp.	0 ~ +50°C
Dimension	210 x 109 x 38 mm
Weight	645g
Certification	CE, FCC
I/O	RS-232 x 2 RS-485 x 1 USB (V2.0) x 2

4. DC Current Meter

Max display (KWH)	8 digits
Max adjustable (V,A,KW)	4 digits
Comm. port	RS-485
Dimension	96 x 48 mm
DC voltage input	0 ~ 100 V
DC current input	0 ~ 100 A
Power supply	AC 115/230V \pm 10%, 50/60Hz

5. AC Current Meter

Max display (KWH)	8 digits
Max adjustable (V,A,KW)	4 digits
Comm. port	RS-485
Dimension	96 x 48 mm
AC voltage input	240 V
AC current input	0 ~ 50 A
Power supply	AC 115/230V \pm 10%, 50/60Hz

6.1 Battery Pack Spec.

Model	LiFePO4
Cell Configuration	48 cells (16S3P)
Nominal Capacity	45Ah @C/3
Minimum Capacity	40.5Ah @1C
Pack Voltage	48V
Pack Nominal Voltage	52.8V
Charge Voltage	58.4V
Cut-off Discharge Voltage	2.5V /CELL
Charging Method	CC/CV
Max Discharge Current	75A (8/16/32 sec) 150A (96usec)
Maximum Charge Current	75A (Typ.)
Cycle Life(minimum)	1500cycles @1C 100% DOD 2000cycles @1C 80% DOD

6.2 Battery Pack Spec.

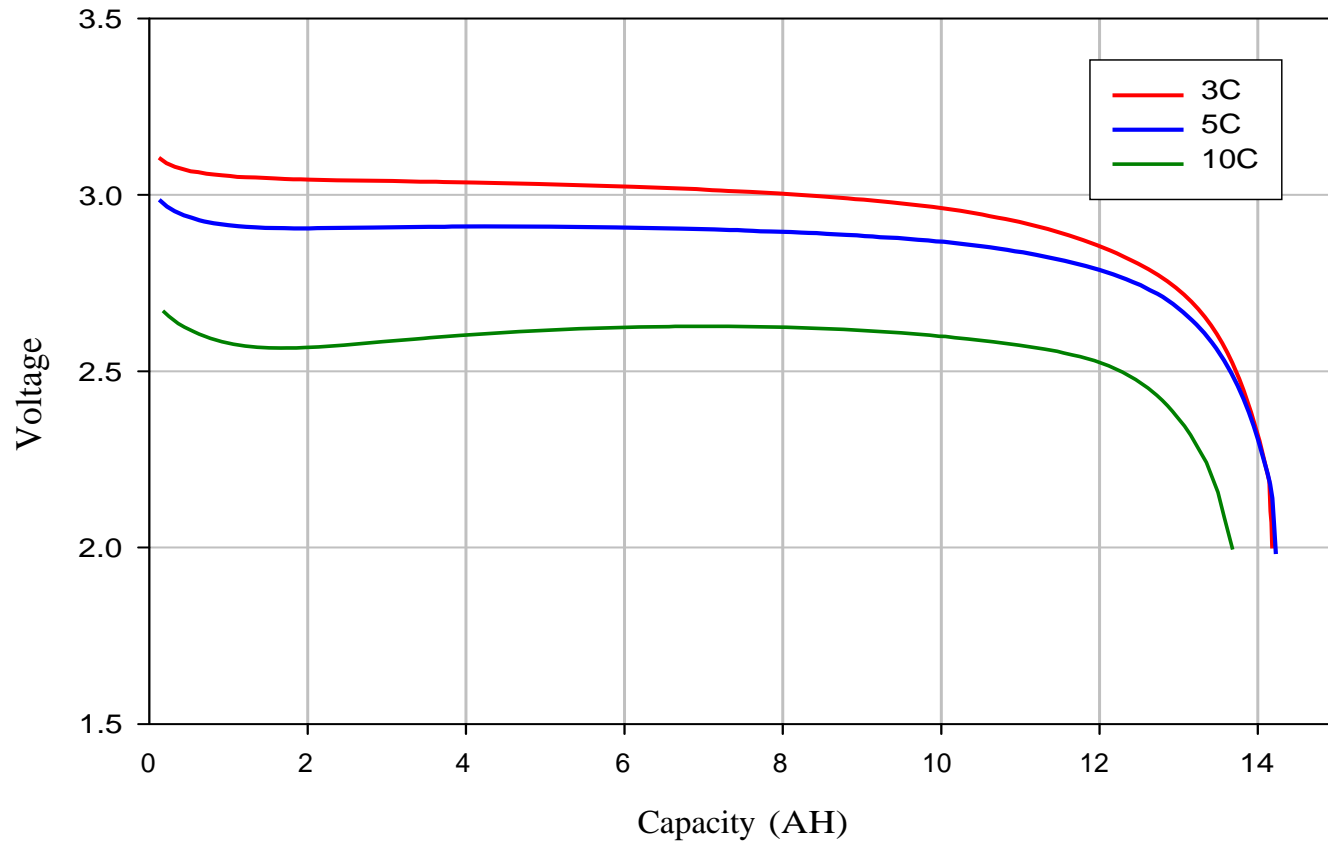
Operation Temperature	
Charge Temperature Range	0~45 °C (1C)
Discharge Temperature Range	-20~55 °C (1C)
Storage Temperature	
Short Period(1 month)	-20~45 °C
Long Period(6 month)	-10~35 °C
Weight (Kgs)	30.1
Dimension (L x W x H mm)	479 x 189 x 230

7. Battery BMS Spec.

Balance Current	150mA
OVP(Over Voltage Protection)	3.9V/CELL
OVP Release	3.5V/CELL
OVP Delay Time	1 sec
UVP (Under Voltage Protection)	2.2V
UVP Release	2.5V/CELL
UVP Delay Time	1 sec
OCP(Over Current Protection	75A
OCP Release	remove load
OCP Delay Time	8/16/32 sec
OTP(Over Temperature Protection)	75 °C
OTP Release	60 °C
Power consumption	<1.7mA (Standby) <0.1mA (Sleeping)

8. Discharge Chart

40166 15AH C-Rate Discharge



9. Standard System Spec.

Recommended Energy sources		
Solar panel	360W ~ 1700W	Not included. (up to 3KW)
Wind turbine	150W ~ 3000W	Not included.
MPPT Charger and Controller		
Solar MPPT performance 96%	Input : 16 ~ 55Vdc, 30A MAX Output : 54Vdc, 30A MAX	Options : Solar MPPT charger up to 3KW Wind MPPT charger up to 3KW
Inverter & AC charger	Inverter 1500W Input : 48V (42 ~ 60 Vdc), Output : 220Vac True sine wave	AC Charger 1500W Input : 220Vac / 110Vac Output :57V , 1.35A
Battery packs		
Lithium Iron Phosphate (LiFePO4)	48V45AH (2376Wh)	Options : up to 4.75KWh.
Sensors	Temperature sensor DC current sensor AC current sensor	Options : Solar radiation , Wind speed ,Direction sensor
Energy management		
Data log storage		2GB
Power requirement & consumption		12W
Monitor size		15" TFT LCD
Display resolution		1024 x 768 (VGA)
Function :		
<ul style="list-style-type: none"> ■ Set up timer switch select off beak low cost grid power source. ■ Battery status display ■ History graph and real time chart display ■ Read data and status from Inverter 		Options : <ul style="list-style-type: none"> ■ Solar radiation sensor ■ Temperature sensor ■ Money and CO2 emission calculation

Application for Energy Bank



Green power for home appliances



Power for Island agricultural irrigation system

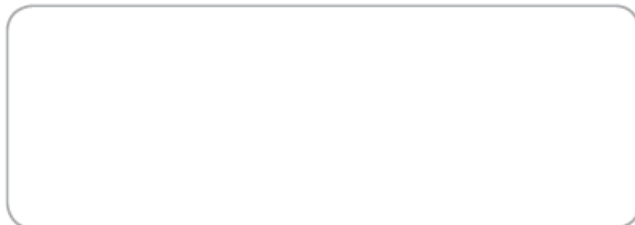


Mobile Lighting



Same function as UPS back up power.

Available from:



RIPEnergy[®]

The power conversion company

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