

USGB

US GREEN BATTERY

Renewable Energy Systems



HR TECH 24

For the Nation for the People

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About Us

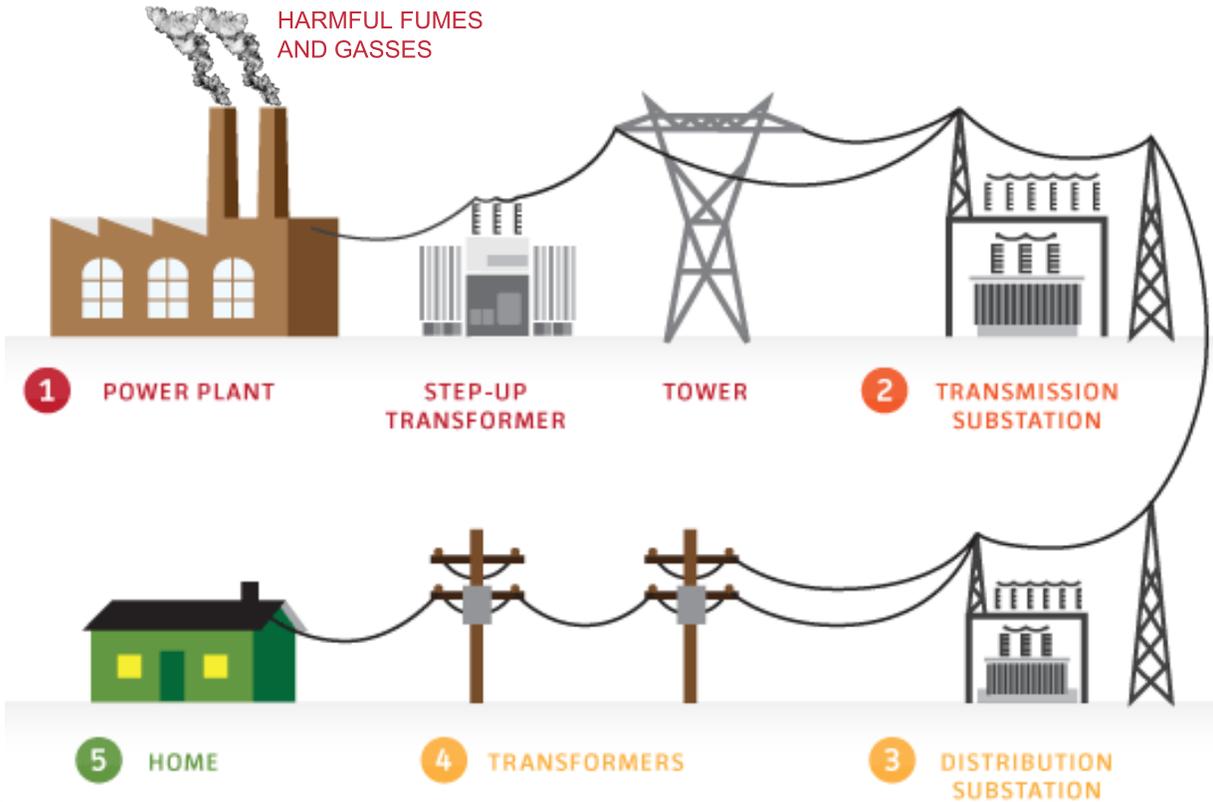
- u US Green Battery INC is a privately owned company that specializes in designing energy efficient renewable energy systems with a core focus in battery design and assembly
- u Mission Statement: Supply clean and affordable renewable energy systems utilizing battery storage to allow for grid -independence
- u Our Vision: A sustainable future powered by 100% renewable energy



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Energy Today



- u Traditionally most of the world relies on power plants to generate and distribute power from an electric grid
- u This energy is typically generated by burning fossil fuels, emitting tons of harmful gasses into the environment
 - u Finite supply of fossil fuels
- u Large amounts of Carbon Dioxide are released into the environment making it one of the largest contributing factors for global warming



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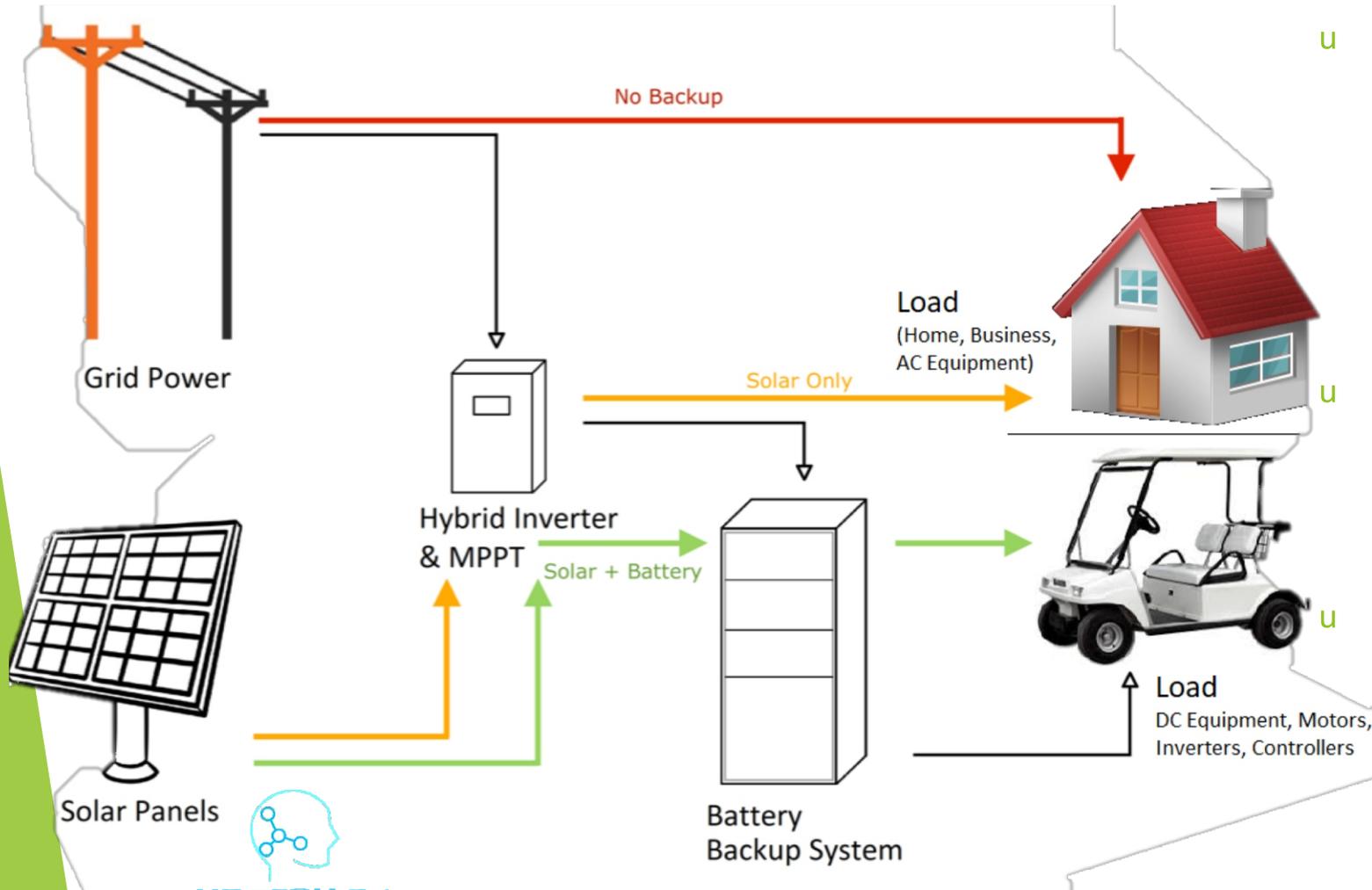
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Energy of the Future

- u What is renewable energy?
 - u Energy that comes from a source that does not get depleted after consumption
- u Types of renewable energy
 - u Solar, Wind, Hydroelectricity, Biomass, and Hydrogen, are amongst the more conventional methods
- u Utilize natural resources such as sunlight, wind, or hydro power to generate electricity
- u Less of a negative impact on the environment
- u Typical structure consists of a one time cost and no recurring costs for the generation of energy
 - u Cost of panels; free sunlight
 - u Cost of wind turbines; free wind

INFINITE RESOURCES AVAILABLE

Advantages of Battery Backup



u Grid Power with no Solar/Battery

- u When power fails, AC load has no immediate failsafe
- u Diesel generator may take over
 - u Exhaust fumes and very noisy
 - u Cost of diesel

u Grid Power with Solar

- u Reduces load on grid
 - u Good for reducing bill, but not during power outages

u Grid Power with Solar/Battery

- u When power fails the inverter automatically switches to battery power in under 5 milliseconds
- u Solar and battery can run the entire system without relying on grid

Types of Lithium Ion Batteries

NMC, LTO, Portable, AC Paired



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Lithium Nickel Manganese Cobalt Oxide (NMC)

- u An NMC is also known as lithium -manganese-cobalt-oxide
 - u Higher energy density
 - u More watt-hours by weight and volume
 - u Longevity
 - u Up to 4,000 cycles
 - u Expandable
 - u Connect to a string of batteries
- u Batteries connected in series or parallel to increase capacity
 - u Start as small as 1kWh
- u Up to 12.5kWh as a single battery pack
- u Racking system available for larger backup requirements



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Lithium Titanate (LTO)

- u An LTO or Lithium-Titanate battery is a type of rechargeable lithium-ion battery with superior characteristics
 - u Safety
 - u Lithium titanium oxide is low risk for fire
 - u Longevity
 - u Up to 25,000 cycles
 - u Expandable
 - u Connect to a string of batteries
 - u Rapid-charge capability



- u Batteries connected in series or parallel to increase capacity
 - u Start with any size and increase in increments of 2.5kWh
- u Up to 10kWh as a single battery pack
- u Racking system available for larger backup requirements

Portable Packs



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- Built in Hybrid AC Inverter can go up to 2500W
- Built in MPPT for Solar PV and AC charging compatibility
- Optional features such as USB out, DC out, Car Starter, and LCD Display
- Safety fuse to prevent short circuiting
- Portable design for easy mobility

1kWh



1.5kWh



5kWh



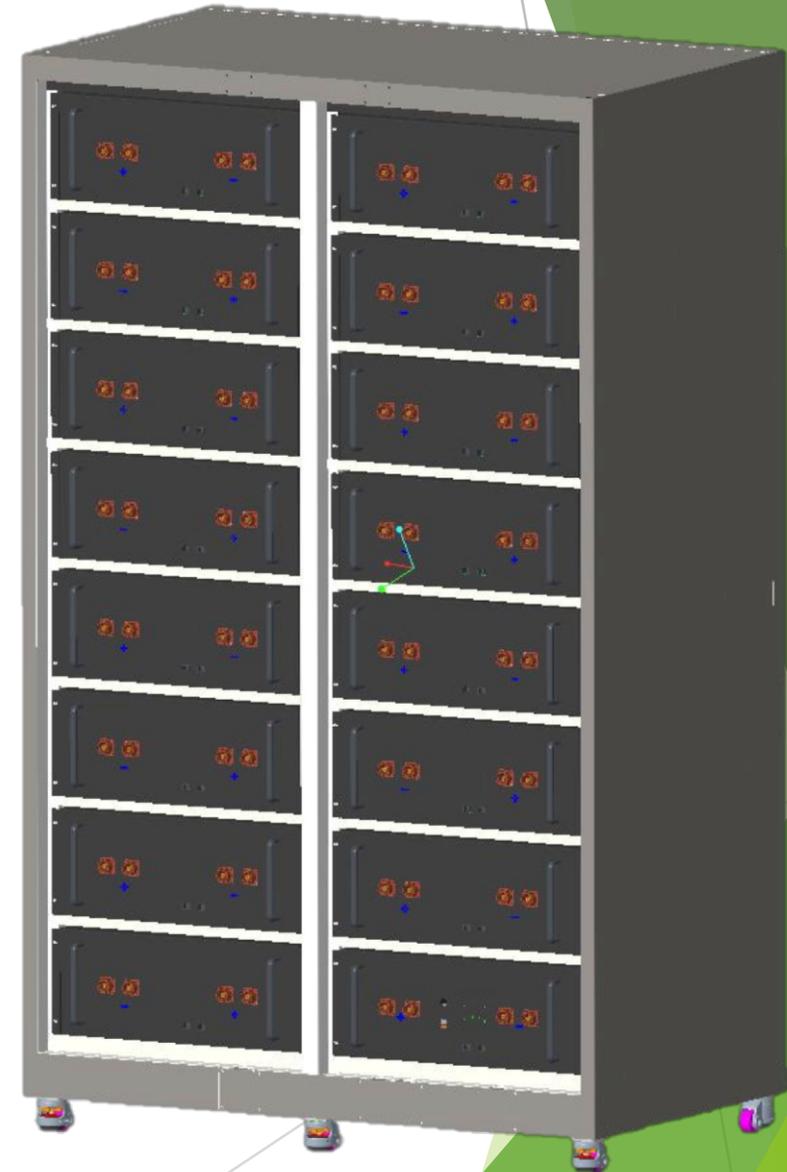
AC Paired Systems

- u System includes
 - u Lithium ion battery backup
 - u AC inverter with automatic transfer switch
 - u MPPT for solar charging
- u Optional racking system
- u Customizable design
- u Unlimited storage potential



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Electric Vehicles



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Golf Cart



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Lead-acid Batteries

- u 6 Trojan lead -acid batteries
 - u 48V @ 170Ah (approx.)
 - u Approx. 8.1kWh total storage
 - u L 20" x W 22" x H 11.14"
 - u 380lbs



USGB Lilon Battery

- u 2 Li-ion batteries
 - u 48V @ 196Ah
 - u 9.9kWh total storage
 - u L 20" x W 15" x H 5"
 - u 98lbs



Solar Powered EV



- u Allow golf carts or E -rickshaw to run without needing to plug in for charging
- u Solar panel roof installation
- u Small charge controller takes up minimal space and fits under seat
- u Generate up to 360W at peak hours
- u Cycle through batteries one at a time instead of draining the entire pack
 - u One pack charges while the other discharges
 - u Quick connectors for easy switching

Options and Features



- u Modular battery
 - u Available in 1kWh, 2.5kWh, or 5kWh units
 - u Increase or decrease storage capacity and runtime
 - u Anderson power poles for fast and easy connections
- u MPPT charge controller for efficient battery charging
- u Up to 100A Battery Management System
- u Optional DC to AC inverter for 110VAC output
 - u Power computer, audio/video equipment, or anything that requires AC power.
 - u Up to 3000W max output

Specifications



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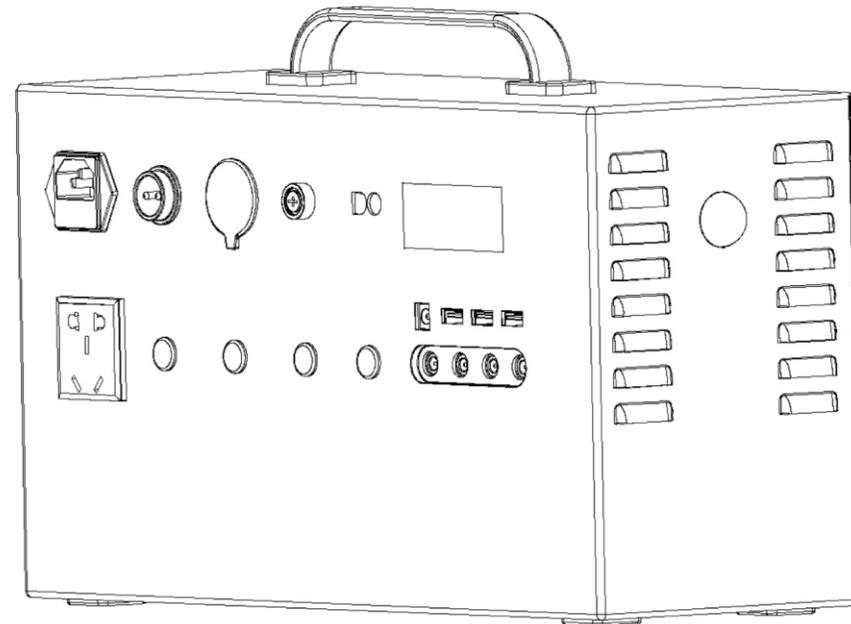
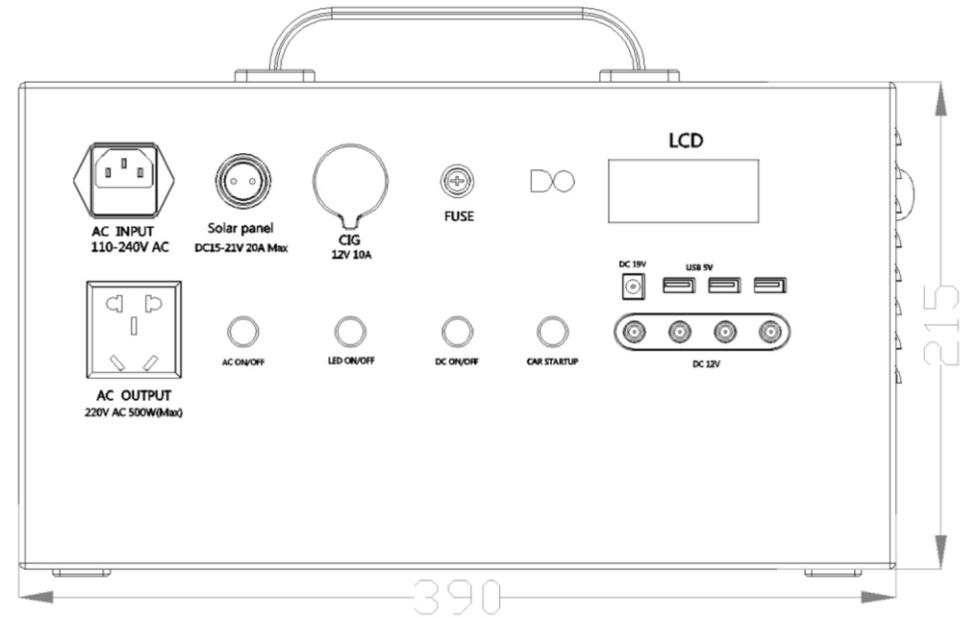
Cell Specifications



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No.	Item	Specification	
1	Rated Capacity	63Ah	
2	Rated Voltage	3.6V	
3	Rated Energy	226.8Wh	
4	Standard Charging	CGCV module Charge Voltage	4.2V
		Current	20A (0.3C)
		End Current	3A (0.05C)
5	Standard Discharging	CC Module	
		Rated Current	63A
		Max Current	180A
		End Voltage	3V
6	Max Output Power	226.8W (1.0CP)	
7	Weight	970g	
8	Temperature Rating	Charge	0 to 50 Celsius
		Discharge	-10 to -55 Celsius
9	Size	Length	325mm
		Width	134mm
		Thickness	11.5mm

1kWh Portable



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1kWh Specifications



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No.	Item	Name	Specifications	
1	Display System	Type	LCD Screen	
		Size	70x30mm	
		Backlight	Blue	
2	Battery	Type	Polymer Lithium-Ion	
		Rated Capacity (Ah)	65Ah	
		Rated Voltage (V)	14.8V	
		Cycle Life	>1500	
3	BMS	Discharge Characteristics	Continuous Current	60A
			Over current protection	180A
			Charge Voltage	16.8V
		Charge Characteristics	Charge Current	8A
			Over-charge Protection	Single Cut-off Voltage
		Single Release Voltage		4.15±0.05V
		Over-discharge Protection	Single Cut-off Voltage	2.75±0.05V
			Single Release Voltage	3.0±0.1V
		Short Circuit Protection	Short Circuit Protection	Yes
			Release Condition	Disconnect the load, Charge to Activate
		Power Equalization (mA)	Power Equalization	Yes
			Equalizing Current	50±5mA
			Protection Temperature (°C)	75±5°
		Over temperature Protection	Protection Temperature (°C)	75±5°
		Self-consumption	Work Current (µA)	≤60 µA
4	Charging Input	AC Wall Charging	Rated Input Voltage (V)	110V
			Over current protection	Yes
			Reverse polarity Protection	Yes
			Interface Type	φ6.3×3.0mm Aviation Outlet
			Rated Input Voltage (V)	18V
		Solar PV Charging	Input Voltage Range(V)	15-21V
			Input Current (A)	5V (Max 10A)
			Over-current Protection	Yes
			Reverse polarity protection	Yes
			Interface Type	USB General Type
5	USB 5V Output	USB 5V Output	Output Voltage (V)	5±0.3V
			Output Current (A)	2A (Max 8A)
			Over current protection	Yes
			Interface Type	φ5.5×2.1mm DC Socket
6	DC 12V Output	DC 12V Output	Output Voltage (V)	19±0.5V
			Output Current (A)	3.5A
			Over current protection	Yes

No.	Item	Name	Specifications	
7	DC 19V Output	DC 19V DC19V Output	Interface Type	φ5.5×2.5mm DC Socket
			Output Voltage (V)	12±0.5A
			Output Current (A)	2.5V (Max 9A)
			Over current protection	Yes
8	AC Output	On/Off Mode	Switch Type	Rocker
			Output Waveform	Pure Sine Wave
			Output Voltage (VAC)	220 ±5%
		Basic Parameters	Output Frequency (Hz)	50 ±0.5%
			Total Harmonic Distortion	THD≤ 3%
			Output Power (W)	500W
			No Load Power (W)	15 ±3W
			Inversion Efficiency	≥90
			Input Fuse (A)	30A
			Low-Voltage Protection	12.0±0.5V
			High-Voltage Protection	18±0.5V
			Output Under-Voltage Protection	Yes
			Output Over-Voltage Protection	Yes
		Protection Functions	Output Over-Load Protection	Yes
			Output Short-circuit Protection	Yes
			Over-temperature Protection	85 ±5°
			Release condition of Short-circuit Protection	Remove the load and restart device
Output Connector	Interface Type (1Port)	American/Australian/Euro Standard		
	Car Ignition Output (1 Port)	DC12V 200A (Max 500A)		
9	Light	Type	White LED	
		Power	5W	
		Multi-mode	100%, 50%, 20% Brightness	
10	Operation Environment	Working Temperature	-20° ~+55°	
		Charge Temperature	0° ~+45°	
		Humidity	10%~ 85%	
		Cooling	Forced Air Cooling	
		11 Dimensions	L/W/H (mm)	385×140×215mm
12Weight	Net Weight	8.5KG		

5kWh Portable



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Specifications:

- Input Charging Voltage 48.1V – 54.6V
- Input Charging Amperage 10A, 30A, or 50A
- Continuous output power 1500 Watt
- Surge power 3000 Watt
- Output voltage 120 volt
- Output wave form pure sine wave 60Hz (THD $\leq 3\%$)
- USB Output 5VDC, Max, 1 amp
- Over temperature protection $149 \pm 8^\circ\text{F}$
- Over-load protection 1700 Watt ± 200 Watt
- No Load currents 0.5 amp
- Working Temperature $32\text{-}104^\circ\text{F}$
- Storage temperature $14\text{-}113^\circ\text{F}$
- Intelligent cooling (the cooling fan will start running when the case temperature reaches 104°F)
- Remote port for optional remote

Characteristic	
Voltage	48.1 - 54.6V
Current	104Ah
Round Trip Efficiency	.98
Storage	5002Wh
Operation Temperature	-4°F to 122°F
Installation	Indoor & Outdoor
Life Cycles	4000
Charge Voltage	54.6V
Charge Current	10-50A
Dimensions	23.6 x 14.4 x 10.6"
Weight V1.0	85lbs
Warranty	5 Years on Battery
Discharge	1C



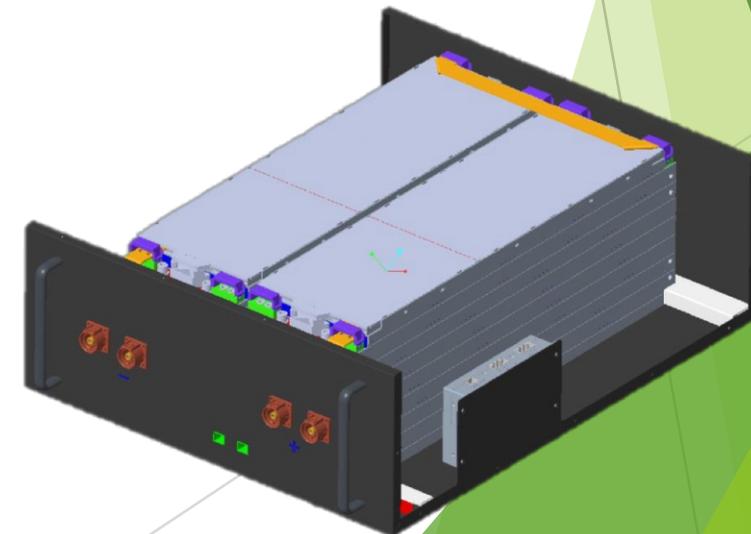
Module Specifications



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Item	Name	Basic specs
1	Rated capacity	189AH (3P)
2	Rated voltage	50.4V (14S3P)
3	Rated energy	9.525KWH
4	Standard charging	CC-CV module, Charge voltage 58.8V
		Current 60A (0.3C)
		End current 9A (0.05C)
5	Standard discharging	CC module
		Rated current 190A
		Max current 380A
		End voltage 42V
6	Max output power	9.525KW (1.0CP)
7	Weight	55KG
8	Temperature	Charge 0-50 degree C, Discharge -10-55 degree C
9	Size	L350*W290*H270mm

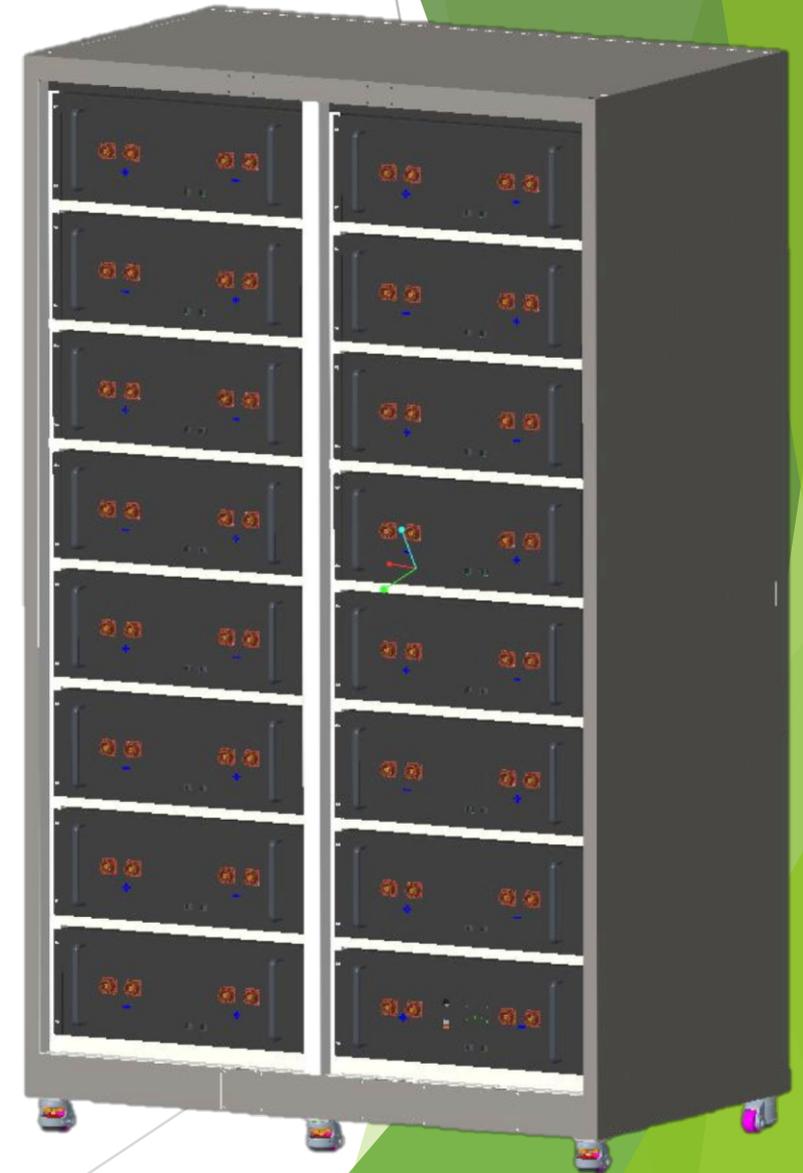


Rack Specifications



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Item	Name	Basic specs
1	Rated capacity	189AH (3P)
2	Rated voltage	504V (140S3P)
3	Charge voltage	588V
4	Rated energy	95.25KWH
5	Standard charging	CC-CV module
		Current 100A(0.5C)
		End current 9A (0.05C)
6	Standard discharging	CC module
		Rated current 190A
		Max current 380A
		End voltage 420V
7	Max output power	95.25KW (1.0CP)
8	Weight	650KG
9	Temperature	Charge 0-50 degree C, Discharge -10-55 degree C
10	Communicate	CAN
11	Size	L450*W650*H1800mm



LED Applications



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Solar Light Tower



EASY OPERATION

Charge by day, work by night
External Charge
Quick Installation (Simple 1 Person Setup)

SUPERIOR PERFORMANCE

Bright White LED Lighting
Shows True Colors
Provides Safe Work Areas
Covers Large Areas

SUSTAINABLE LIGHT

No Expensive Diesel Fuel
No Time-Consuming Refueling or Maintenance
No Noise
No Exhaust Fumes
No Carbon Emissions
No On-going Operating Costs

RELIABILITY

Simple to Connect & Tow Trailer
Tough commercial grade steel trailer
30" wheels for smooth and easy transport
ON-SITE SECURITY



Simple To Connect & Tow Trailer

- Tough commercial grade steel trailer
- 30" wheels for smooth and easy transport

Flood Lights

- Brilliant white LED Lights are Solid State. Unlike filament lights, they are more resistant to vibration damage during transport

Compact | Rugged

Portable | Road Ready



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Solar Grid Tied Street Lights

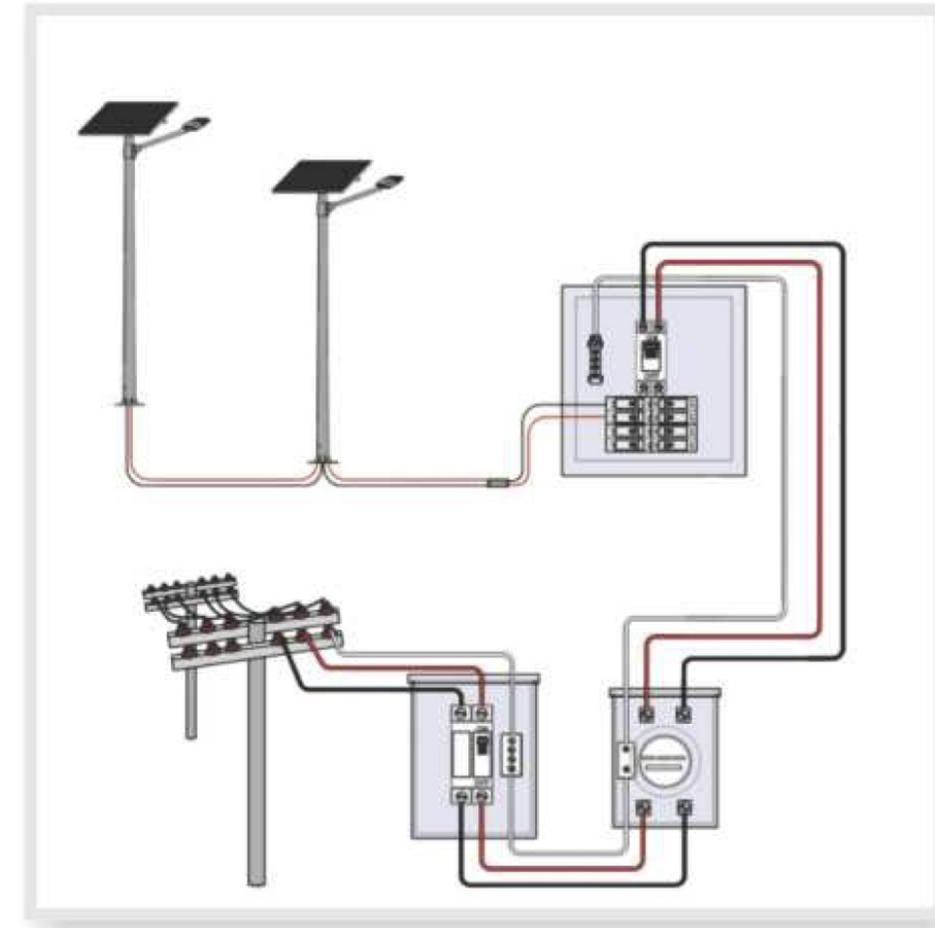


Features

- High illumination level matching with urban needs
- No batteries required in grid tied model
- Ability to withstand harsh climates
- No additional infrastructural cost besides panels and microinverter
- Continuous monitoring possible to ensure carbon neutrality

Basic Requirements to Install Grid Connected Solar Street Lights

- Availability of reliable grid and pole
- Permission to connect micro inverter with grid under state and federal guidelines



LED Floodlights

110/220/
24V AC



PRODUCT INFORMATION

HOUSING	Aluminium PDC
FRAME COLOUR	Black
IP RATING	IP66
OPERATING TEMP	(-40°C to 60°C)
INPUT VOLTAGE	90-305VAC, 50/60Hz/24V AC
LIFESPAN	>50,000 hours (Ta-25°C)
ALUMINIUM GRADE	ADC12/LM24/ALSL132
POWER FACTOR	> 0.98
CCT	2700-6500K
CRI	>70
THD	< 10%
LUMINOUS EFFICACY	>120 lm/w
MECHANICAL IMPACTRESISTANCE	IK08 (Body & Frame Only)



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