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# Make solar Valuable

National Battery Supply adheres to quality-oriented, and continuous innovation in battery storage and charging capacity. We are the peak supplier for the industry of battery manufacture for electric vehicle charging, and consumer grade batteries for electronics manufacturers. As a supplier with more than two decades of experience, we can bring what our competitors can not offer. With National Battery Supply, you get high energy density and long lasting batteries and charging solutions. Thanks to our positive electrode and vacuum immersion techniques, we ensure efficient charging, discharging and long lasting storage products with long life spans. Our two ISO 9001:2004 – and ISO 14001:2004-certified plants guarantee a monthly capacity of 25 million disposable batteries and 3.5 million rechargeable batteries. Every product in our supply line is checked by over 40 QC staff members. We seek to exceed your production and quality requirements for any types of solutions. Each product comes with CE, UL and RoHS certification for qualification in international distribution.



### **MILESTONES**

2002

NBS Group established, the main business is Service Equipment 2008

Help province government PV power station project

NBS Solar was founded, built first solar cell and solar panel factory in YanCheng city

2005

Awarded National High Technology Environmental Protection Company

-2011

2023

To be continued

2017

Cambodia Factory and New Jersey warehouse Founded

Investment of Vietnam factory for fast grow NA market

2022

Jiangsu Factory Established, Expand Capacity to 400MW

2015





High Efficiency Solar Panels

Manufacturer New TOPCon technology



### **LEADING TECHNOLOGY: N-Type TOPCon**

Since NBS entered the solar energy industry, it has been constantly updating its production lines and continuing to help customers achieve their goals with strong innovation capabilities. These cell advances are accomplished rather easily on PERC cells when compared to brand new manufacturing processes. PERC adds a passivated film to the back of ordinary solar cells to absorb more light that may have passed the initial cell surface. TOPCon takes that same PERC film and adds an ultra-thin oxide layer on top as another barrier to contain unabsorbed light.

The theoretical efficiency limit of ordinary PERC technology is about 24%, indicating how much solar energy the panel can convert into usable electricity, so in order to continue to advance, NBS uses a more advanced "passivated contact technology" - N-type double-sided TOPCon cell efficiency reaches 25.21%, the highest conversion rate can reach 25.4%.



Minority carrier restrain

Majority carrier pass

Low resistance loss & high Voc



24.0% +

Cell Efficiency



100 +

patents



80 +

Global R&D Engineers



800 +

AW Annual Capacity

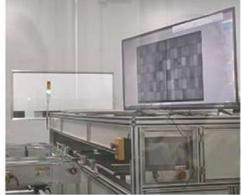
### Multiple production line

Vietnam, Cambodia, China
Highly automated new equipements
Advanced manufacturing process
Vertically integrated industrial chain



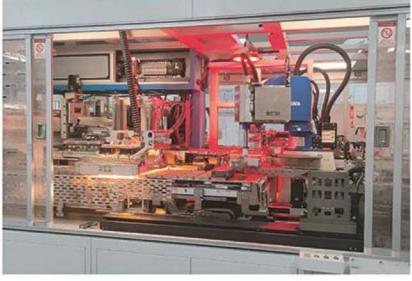
















**TOPCon** 

CellInside

# The best full black modules series

410-430W Mono FULLBLACK

108 Half-Cell Layout M10/182mm N-TOPCon Cell















Full Black Appearance for Aesthetic Effect



SMBB Half Cut Cell Technology

N-TOPCon Cell

Technology



Excellent Anti-PID Low LID Performance



Less Hot Spot Shading Effects



Higher Power Outout Lower BOS&LCOE



### UP395W-415W-54HB

Maximum Power (Pmax/W) 395 400 405 410 415

Module Efficency (n%)

20.23 20.48 20.74 21 21.25

Dimensions/Weight:

1724\*1134\*30mm / 22kg

Number of cells:

108(6\*18)

### UP580W-610W-60H

Maximum Power (Pmax/W): 590 595 600 605 610 Module Efficency (n%): 20.8 21.0 21.2 21.4 21.6 Dimensions/Weight: 2712\*1303\*35mm / 30.5kg

Number of cells: 120(6\*20)

### UP655W-675W-66H

Maximum Power (Pmax/W): 655 660 665 670 675 Module Efficency (n%): 21.1 21.2 21.4 21.6 21.7 Dimensions/Weight: 2384\*1303\*35mm / 33.2kg

Number of cells: 132(6\*22)



### Half-cut & MBB technology

For 3% more Power, Lower internal current, lower power loss

### **Excellent weak light performance**

More power output in weak light condition

### Lower the risk of hot spot

Special design with lower hot spot temperature

### Lower LCOE

Higher Power Generation, Lower LCOE.

### High quality guarantee

20 YEARS Product quality and process guarantee & 25 YEARS Linear power quarantee

### Low power degradation

2% First year power degradation, and 0.55% Annual degradation over 25 years

### 1500V DC

High system voltage of J-box and glasses, reduce PV System cost.



Residential Hybrid Solar Inverter

- -Compatible with lead-acid and lithium-ion batteries
- -Battery reverse connection protection, anti-power control function
- -Input power source priority can be set by users
- -IP65 protection, Low noise <35dB

	Technical specification	R8KH3	R10KH3	R12KH3		
	Input (PV)					
	Max.power(kW)	10.4	13	15.6		
	Max. DC voltage(V)		1,000			
	MPPT voltage range(V)		180~850			
	Max.input current of single MPPT(A)		12.5			
	MPPT tracker/strings	2/1	2/1	2/1		
	AC output	1014.014				
	Rated output power(kVA)	8.8	11	13.2		
	Max. output current(A)	12.7	15.9	19.1		
	Grid voltage/range(V)		400/360-440			
	Frequency (Hz)		50 /60			
	Power factor		0.8lagging-0.8leading			
	THDi		<3%			
	AC output topology		3W+N+PE			
	Battery					
	Battery voltage range(V)		125~600			
	Max. charging voltage(V)		600			
	Full battery voltage(V)	210	270	250		
	Max. charge/discharge current(A)	40	40	50		
	Battery type	(7.T.()	lithium /Lead-acid			
	Communication Interface		CAN/RS485			
	EPS output					
	Rated power(kVA)	8.8	11	13.2		
	Rated output voltage(V)	1966	400	10 17 1 NO.		
	Max. output current(A)	12.7	15.9	19.1		
	Rated frequency(Hz)	****	50 /60	***		
	Automatic switching time(ms)		<20			
	THDu		<2%			
	Overload capacity		ς			
	General data		110%, 30S/120%, 10S/150%, 0.02	-		
	Battery charge /discharge efficiency	96.6%	96.7%	96.8%		
	DC Max. efficiency	97.9%	98.2%	98.2%		
	Europe efficienc	97.2%	97.5%	97.5%		
	MPPT efficiency	99.5%	99.5%	99.5%		
		33.370	Tiple Securi	33.3%		
	Ingress protection	1965				
	Noise emission(dB)  Operation temperature	<35				
		-25°C~ 60°C				
	Cooling	Natural				
	Relative Humidity	0 ~95% ( non-condensing )				
	Altitude	2,000m (>2,000 Derating 530*200*600 29 No				
	DimensionsW * D * H(mm)					
	Weight(kg)					
	Isolation transformer					
	Self-consumption(W)		<3			
	Display and communication		2 (m ±2)			
	Display	LCD				
	Interface:RS485/Wifi/4G/ CAN/DRM	Yes/ Opt/ Opt/ Yes/ Yes				
	Safety standard	IEC/EN62109-1/-2, IEC/EN62477-1				
	EMC	IEC/EN 61000-6-1, IEC/EN 61000-6-3				
	On-grid	Europe: EN50549-1. Ge	rmany: VDE4105/0124, UK: G99, 5	South Africa : NRS 097-2-1:2017		



## Pure Sine Wave Inverter With E Display



This inverter offer superior quality true sine wave paower, it is designed to operate various of power tools and inductive loads, The AC output waveform is even better than the power supplied by your utility.

- Intelligent digital display
- Input & output fully isolated
- Very stable AC output, Low voltage drop
- Customized input voltage: 36V/60V/72V/96V/110VDC

### Optional parts



Remote Switch





50/60Hz Frequequency Switch

RS485 Communication

# MPPT Solar Charge Controller







### Products Specification

Model	SSM-50-96	SSM-100-96	SSM-50-192	SSM-50-384	SSM-100-192	SSM-100-38		
Rated Current	50A	100A	50A	50A	100A	100A		
Rated System Voltage	96V	96V	192/216/240V	384V	192/216/240V	384V		
Max PV Input Voltage	300V		450V	800V	450V	800V		
MPPT Route Number	1	2	1	l	2			
Battery Type	lead acid battery/deep cycle battery/gel battery/ etc							
Charge Voltage	113.6V/227.2V/255.6V/284V/454.4V							
Charge Protection Voltag	120V/240V/270V/300V/480V							
Promote Recovery Voltag	105.6V/211.2V/237.6V/264V/422.4V							
Protection	over-voltage/under-voltage/over-temperature/PV&battery anti-reverse protection							
MPPT Efficiency	>99%							
Dimension(L*W*H)cm	31.5*25*10.8		46*33*14		53*41*16.2			
Meas(cm)	36.5*	31*16.4	50.9*40.5*21.5		59.8*48.7*23.9			
N.W/Unit(kg)	4.5	5.6	13.5	15	22.6	26.5		
G.W./Carton(kg)	5.2	6.3	15	16.5	24.6	28.5		
Elevation	<5000m							
Humidity	5%-95%, No Condensation							
Communication	RS485(Optional)							



LFP-Powerwall box, a Low-voltage lithium battery. With a scalable modular design, the capacity range can be expanded from 5.12kWh to 51.2kWh. The modules are connected by cables to support high-power work and are easy to install and maintain. Long life technology ensures more than 8000 cycles with 90% DOD.

### Convenient

Wall mounted battery&compact design, ease of installation

### Scalable

Use of parallel connection, from 2 to 10 modules



Family Small store

### Compatible

Compatible with multiple inverters, Multiple communication Interfaces RS232, RS485, CAN

### Sufficient

High energy density, 110Wh/kg

### Compliant

Ip21 Protection, indoor application

### Safe

Office

Multiple protectioin LiFePO4 material, safe and long life



Church



### **Battery Products Specification**

Single module capacity	5.12KWH							
Module number	1/PCS	2/PCS	3/PCS	4/PCS	5/PCS			
Total capacity	5.12KWH	10.24KWH	15.36KWH	20.48KWH	25.6KWH			
Standard voltage	51.2V							
Working voltage	43.2V-57.6V							
Standard discharge current	100A	200A	300A	400A	500A			
Standard charge current	50A	100A	150A	200A	250A			
Suggested DOD	80%							
Humidity	10-85%							
Installation	Stacked							
IP rating			IP20					
Communication	CAN/RS485/RS232(WiFi/bluetooth/4G optional)							
Product size/unit	620*550*480mm	620*550*760mm	620*550*1040mm	620*550*1320mm	620*550*1600mm			
N.W./unit	50kg	80kg	120kg	150kg	190kg			

OEM & ODM

3



# **RESIDENTIAL SOLAR ENERGY STORAGE SYSTEM** ONE STOP SERVICE









**Solar Inverters** 

**HYBRID SOLAR SYSTEM** 

Reasy Installation Professional Technician Support

✓ Residential 
✓ Commercial





**Energy Storage Battery** 



**Professional Technician Support** 



# **WELCOME TO NBS SOLAR**

2002

20 years experience since 2002 800MW

NBS Solar has provide 800MW capacity products annual

150+

NBS Solar had exported products to more than 150 countries

200+

NBS Solar has 200+ Global employees including 80 researchers and engineers 3 FACTORIES

NBS Solar has an office area of 1500 square meters and three location factories in China, Vietnam and Cambodia

# MAKE SOALR VAULABLE

As a rising star in the Solar industry, NBS plays an important role in sustainability. NBS Solar has always adhered to strict quality control to provide customers with better and higher quality products. We have also been committed to contributing to society with green energy and hope that NBS will have a lasting positive impact on humanity



# WE LOOK FORWARD TO **HEARING FROM** YOU!

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