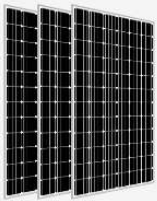


3KW OFF GRID SYSTEM

PLENUM SOLUTION 3.0

3.6 KW



Solar panels

Intgrated with Inverter



Controller

3.0 KW



Inverter



Ac load



Batterys

103 Units Sold per Month in Nigeria



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NO	Load	Power (watts)	Quantity	Working time (hour)
1	LED bulbs	8W	10	10
2	CCTV	58W	1	10
3	Electric fence	10	1	12
4	Fans	40W	7	8
5	Lamp shade	5W	7	8
6	Phone charging outlet	7w	1.5	5
7	Fridge	150w	24	1
8	TV	300W	10	2
Estimation: Daily power consumption 13672.5WH				

Item	Name	Technique details	Qty	Unit
1	Poly Solar panel	300W 36V,	12	Pcs
2	Solar panel bracket	Each 6pcs solar panel use one set , material:Q235C steel + aluminum alloy, including the screw	2	Set
3	Controller	NOMO220-50 ,220V 50A, MPPT	1	Set
4	Battery	Lifepo4 battery pack 51.2v,100AH	3	Pcs
5	Inverter	3KW PURE SINE	1	Set
7	Photovoltaic cable	6MM PV Cable / Meter	80	Meter
8	Connector Mc4	6MM PV Cable / Meter	12	Set
9	Total :			



(solar panel)

Product: Polycrystalline Solar Panel

Model: 300W

WORKING CONDITIONS:

- 1 . Open space without shading
- 2 . Working Temperature: -20C° $\sim +80\text{C}^{\circ}$

STANDARD TEST CONDITIONS

- 1 . Illumination: $1000\text{W}/\text{m}^2$
- 2 . Temperature: 25C°
- 3 . Humidity: 10~90%
- 4 . Air Mass: Am1.5

MAIN MATERIALS OF PRODUCTS

- 1 . Chip: Polysilicon
- 2 . Packaging material:



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Toughened Glass+ EVA + 156 Polycrystalline Cell Chip + PET+ International standard terminal box

STANDARD TEST PARAMETERS

- 1 . Voc: 42.48V
- 2 . Vmp: 36V
- 3 . Isc: 9.16A
- 4 . Imp: 8.33A

PHYSICAL CHARACTERISTICS

The appearance has no obvious deformation, appearance without defect, good gloss, transparent.

Model	300W
Dimension	1950*990*45mm
Conversion efficiency	17%
Maximum power	300W
Optimum operating voltage	36V
Optimum operating current	8.33A
Open-circuit voltage	42.48V
Short-circuit current	9.16A



NOTE :

- 1 . Test size parameter error range: $\pm 0.2\text{mm}$
- 2 . Test electrical pointer voltage parameter error range: $\pm 5\%$
- 3 . Testing electrical parameters, current parameter error range: $\pm 5\%$

(Lifepo4 battery pack)
Lithium Iron Phosphate Battery

Model: IF-SM5U 16S17P



This specification is applied to the reference battery in this Specification:

SPECIFICATION

No.	Item	General Parameter	Remark
1	Rated Capacity	(Typ.) 100Ah	Standard charge and Standard discharge
		(Min.) 90Ah	
2	Nominal Voltage	51.2V	



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3	End of Charge Voltage	57.6V	
4	Charge mode	CC, CV	
5	Charging cut-off current	0.02c	
6	Charging time	5 ~ 6H	
7	Over-Charge Voltage Protection (cell)	3.65V	
8	Max continuous charge current	70A	
9	Maximum Continuous Discharging Current	70A	
10	Batteries is balanced	Equalizing opening voltage:3400mV	Settable
		Equalizing current : 50mA	Settable
		Equalizing current: 30mV	Settable



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Continuous the table 1

No.	Item	General Parameter	Remark
11	Over-discharge Voltage Protection (cell)	2.5V	
12	Short circuit protection	With protection	
13	Short circuit protection Release	Cut off Load	
14	Cell Dimension	Length MAX:482 mm	Initial size
		Width MAX:400 mm	
		Height MAX:222mm	
15	Weight	≈ 69kg	
16	Shell Type	Metal Plate	Standard 5U Case
17	Consumable	Self-consuming Current at Work ≤30mA	
		Low Power Mode Current ≤100μA	
18	Resistance	≤50mΩ	
19	Communication Protocol	Rs232, Rs485	
20	Operation Temperature Range	Charge: 0~45C°	60±25%R.H. Bare Cell
		Discharge: -20~60C°	
21	Storage Temperature Range	1 month : -20C° ~ 45C° 3 months : -20C° ~ 45C° 1 year : -20C° ~ 20C°	60±25%R.H. at the shipment state



22	Cycle Life	1.Charge:0.2C to 57.6V 2.Constant voltage to 0.02C Rest time: 10 min 3. Discharge: 0.2Cto 40V 4. Rest Time between Charge and Discharge: 10min 5. Temperature:25±5C°	Higher than 80% of the Initial Capacities of the Cells 1000 times
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PERFORMANCE AND TEST CONDITIONS

● Standard Test Conditions

test and measurement shall be done under temperature of 25±5C° and relative humidity of 45~48%.

● Measuring Instrument or Apparatus

① Dimension Measuring Instrument

The dimension measurement shall be implemented by instruments with equal or more precision scale of 0.1mm.

② Voltmeter

Standard class specified in the national standard or more sensitive class having inner impedance more than 10kΩ/V.

③ Ammeter

Standard class specified in the national standard or more sensitive class. Total external resistance including ammeter and wire is less than 0.01Ω.

④ Impedance Meter

Impedance shall be measured by a sinusoidal alternating current method (1kHz LCR meter)

● Standard Charge/Discharge

① Standard charge : Test procedure and its criteria are referred as follows :

0.2 C=Charging shall consist of charging at a 0.2 C constant current rate until the cell reaches 57.6V
 The cell shall then be charged at constant voltage of 57.6v when the charging current has tapered to 0.02 C. Charge time: approx 5-6h,

② Standard Discharge

0.2C=Cells shall be discharged at a constant current of 0.2C to 40 volts @25C°±5C°.



③ If no otherwise specified, the rest time between Charge and Discharge amount to 30min.

● Appearance

There shall be no such defect as flaw, crack, rust, leakage, which may adversely affect commercial value of battery.

WARNING

● Prohibition short circuit

● Notice for Designing Battery Pack

Pack toughness

Battery pack should have sufficient strength and the Li- cell inside should be protected from mechanical shocks.

Cell fixing

The Li-Fe cell should be fixed to the battery pack by its large surface area.
No cell movement in the battery pack should be allowed.

Tab connection

Spot welding is recommended for Li-Fe tab connection method.
Battery pack should be designed that shear force are not applied to the Li-Fe tabs.

● Prohibition of disassembly

Never disassemble the cells

The disassembling may generate internal short circuit in the cell, which may cause gassing, firing, explosion, or other problems

Electrolyte is harmful

Li-Fe battery should not have liquid from electrolyte flowing, but in case the electrolyte come into contact with the skin, or eyes, physicians shall slush the electrolyte immediately with fresh water and medical advice is to be sought.

● Prohibition of dumping of cells into Water

Do not soak the battery in which the liquid, like water, sea water and non-alcoholic drinks, fruit juice,



coffee or other drinks.

- Battery cells replacement

The battery replacement shall be done only by either cells supplier or device supplier and never be done by the user.

- Prohibition of use of damaged cells

The cells might be damaged during shipping by shock. If any abnormal features of the cells are found such as damages in a plastic envelop of the cell, deformation of the cell package, smelling of an electrolyte an electrolyte leakage and others, the cells shall never be used any more.

The cells with a smell of the electrolyte or a leakage shall be placed away from fire to avoid firing or explosion.

- Storing the Batteries

The batteries should be stored at room temperature, charged to about 30% to 50% of capacity.

We recommend that batteries be charged about once per half a year to or event over discharge.

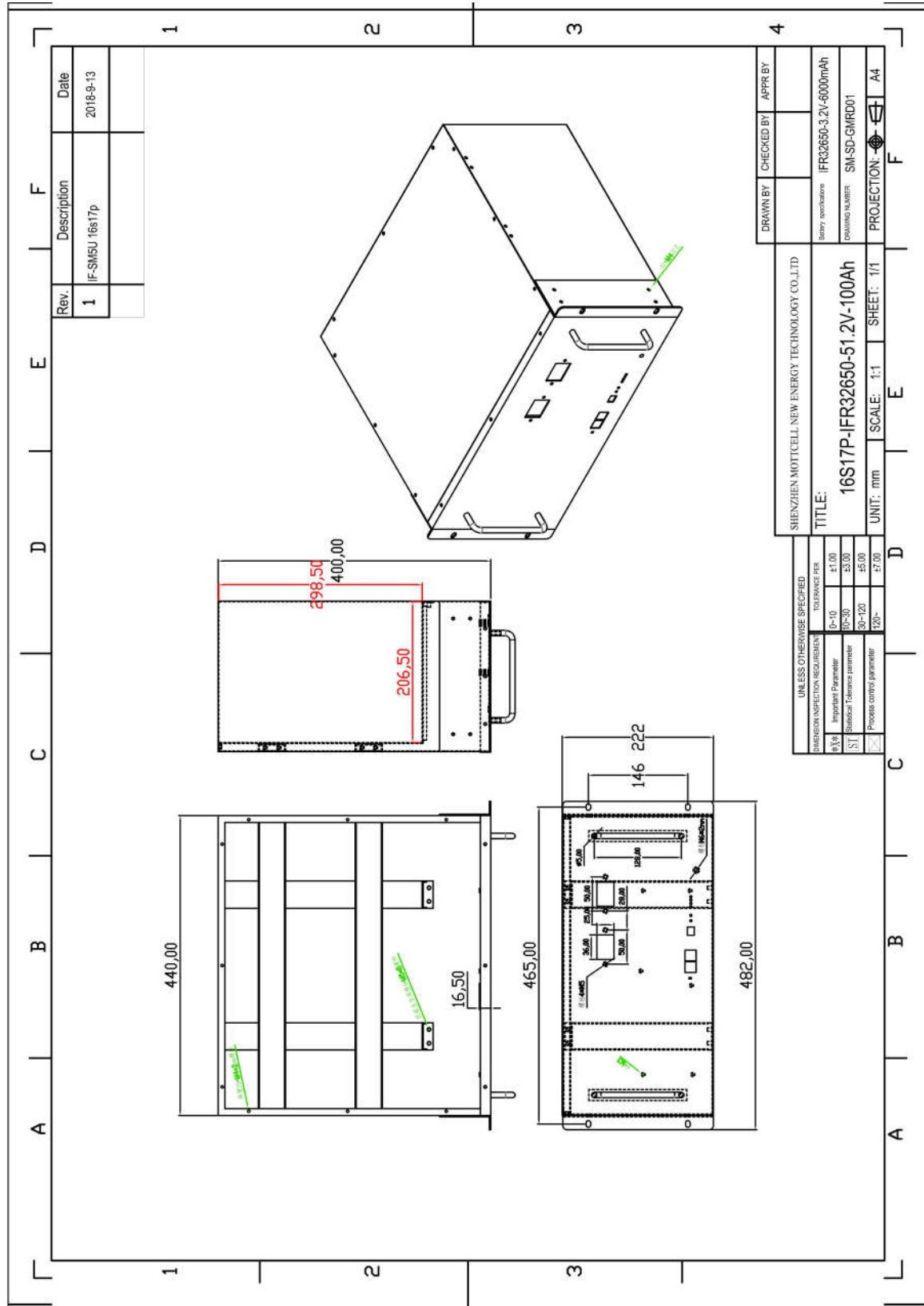
- Other Chemical Reaction

Because batteries utilize a chemical reaction, battery performance over time even if stored for a long period of time without being used. In addition, if the various usage conditions such as charge, ambient temperature, etc. are not maintained within the specified ranges the life expectancy of the battery may be shortened or the device in which the battery is used may be damaged by electrolyte leakage. if the batteries cannot maintain a charge for long periods of time, even when they are charged correctly, this may indicate it is time to change the battery.

- Note :

Any other items which are not covered in this specification shall be agreed by both parties.

Annex 1 (Product structure diagram)





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Annex 2 (Product)



(Inverter controller Integrated machine)

Product Specification

- (Product) : Controller and Inverter Integrated Machine
- (Model No.) : 3KVA





1. Product characteristics and advantages

1.1 System design

- ❖ IR、TI、ST、ON NXP

Semiconductor devices adopt international famous brands such as IR, TI, ST, ON and NXP.

- ❖ MCU , ,

Industrial grade MCU digital technology, strong anti-interference ability, no aging and drift.

- ❖ DC-AC ,

Ultra high charging efficiency and DC-AC inverter efficiency, significantly reduce product temperature rise.

1.2 MPPT High efficiency MPPT tracking technology

MPPT $\geq 99.9\%$, 98%,

The MPPT tracking efficiency is more than 99.9%, and the power generation efficiency of the system is as high as 98%, which improved system efficiency and reduce the system cost.

1.3 High conversion efficiency

97.62%

Charging conversion efficiency up to 97.62%

DC-AC 96%



DC-AC conversion efficiency up to 96%

1.4 Static Power Dissipation

- ❖ $\leq 22\text{mA}$ (48V)
- ❖ Inverter static power consumption current $\leq 22\text{mA}$ (48V)

- ❖ $\leq 12\text{W}$ (48V)
- ❖ No Load Power Consumption $\leq 12\text{W}$ (48V)

1.5 Intelligent battery management

- ❖ Three-stage charging management, MPPT charging, constant charge and constant floating charge, greatly prolonging the battery life.
- ❖ The intelligent charging and discharging management based on temperature compensation, which greatly prolongs the service life of the battery by more than 50%.
- ❖ Intelligent energy management of batteries ensures that batteries work in charging and discharging state, and greatly prolongs the service life of batteries.

External battery can be expanded to expand battery capacity.

1.6 Three output modes

- ❖ Electric Supply Priority Mode
- ❖ Battery Priority Mode

1.7 Excellent load

- ❖ Supporting resistive load, inductive load, capacitive load, half wave load, etc.
- ❖ Strong overload capability
- ❖ 300% Peak ratio up to 300%
- ❖ Pure sine wave output
- ❖ Multiple output voltage levels for option
- ❖ Sudden load and unload, output waveform distortion rate $< 5\%$



1.8 Perfect protection function

- ❖ Battery reverse protection
- ❖ Solar panels reverse protection
- ❖ Prevent night battery from discharging to solar panel
- ❖ Battery under-voltage protection
- ❖ Battery exit under- Voltage Protection
- ❖ Output short circuit protection
- ❖ Output overload protection

2. Technical Specifications

Item	Technical Specifications	
PV PV Parameter	PV Max. Input Voltage	180V
	PV Max. Input Current	10A * 4
	Max. PV Power	2000w
	MPPT MPPT voltage Tracking Range	70-150V
	MPPT Number of MPPT Inputs	2
Electric power supply	Input Voltage Range	180-250 VAC
	Input Frequency	50/60±3% Hz
	Battery Type	/① Lead acid / Lithium Battery
	Rated Voltage	48V
	Max. Charging Current	40A * 2



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Battery Parameter	Constant Charge Voltage	57.6V (Settable)
	Floating Charge Voltage	55.2V (Settable) ②
	Under-Voltage Protection	44V (Settable)
	Exit under- Voltage Protection	50V (Settable)
	Temperature Compensation Factor	-4mV/C°/2V②
	Charging voltage range	40-60V
Inverter parameter	Output Voltage	220/230V (Other output voltages can be used) Vac
	Output Frequency	50/60 Hz
	Output Waveform	Pure Sine Wave
	Max. Output Power	3 KVA
	Output Power Factor	0.8
	Output Peak Current Factor	3:1
	DC-AC DC-AC Max. Efficiency	96%
	Overload Capacity	105~120% 30s, 120~150% 10s >150% 5s , Short Circuit 1ms
	Working Mode	Electric Supply Priority, Battery Priority
Indicator	LCD+LED	

System Parameter	Display Mode	
	Display Content	PV PV Indicator, Battery Voltage, Electric Supply Input Voltage, Inverter Output Voltage, Load Indicator, Working State Indicator
	Protect Function	Overload, Low Voltage, Surge, Short Circuit, Overcharge, Over-discharge, Over temperature etc
	Static Power Dissipation	30 mA
	No Load Power Consumption	<15W
	Cooling Method	Intelligent Air Cooling
	Noise	<60(1m ahead) dB
	Operating Temperature Range	-20~50 C°
	Storage Temperature Range	-20~70 C°
	Relative Humidity	0-90% (Non condensation)
	Max. Operating Altitude	<3000m
	Dimensions (W x H x D)	440*401*221mm

Note :

① : ,

Battery type: lead acid, phosphoric acid and NCM/NCA etc.

②

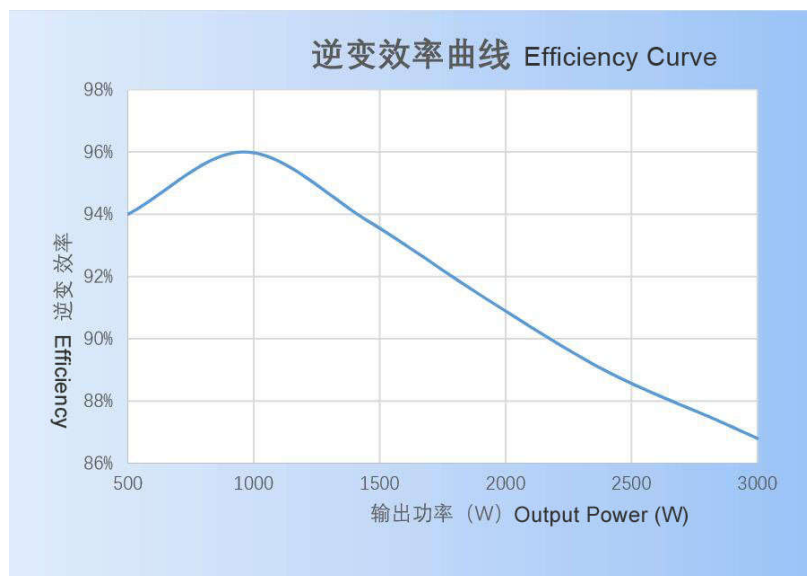
Lithium batteries do not have this option

Working Mode

Mode	Input	Whether inverter working normally	Is the load turned off when the input is switched?
Mains Supply Priority	Mains Supply	Yes	Uninterrupted
Battery Priority(When you choose battery priority [Solar PV Priority], the inverter will invert from battery despite the AC input.	Battery(note when the battery reaches the low battery alarm point, it will change to ac input	Yes	Uninterrupted

3. Efficiency Curve

3.1 Typical Curve of Inverter Efficiency



4. Dimensions



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Designed and Manufactured with our
Engineers and Confidential Partner

Currently Manufactured in Shenzhen China soon Kenscoff Haiti