TECHNICAL SPECIFICATIONS

SOLAR POWER from 1600Wp to 4800Wp
AC INVERTER POWER from 3000W to 10000W

POSTULATE

HOW SOLAR WORKS

Solar cells are made of thin layers of silicon. When sunlight strikes the cells, physical reactions release electrons, generating electric current. Individual cells are grouped together to form solar modules which, when installed on the roof or ground as a component of a complete solar system, generate electricity.

THE COMPONENTS THAT MAKE UP ONE SOLAR POWER SUPPLY SYSTEM

Solar power supply system is made up of solar panels, solar controller, batteries. If the output is AC 220V or 110V, it needs inverter.

THE ACTION OF EACH PART IS

SOLAR PANEL

It is the hard core of solar power supply system. Its action is changing radiating power into electric energy or keeping in battery, or driving loads.

SOLAR CONTROLLER

The action of controller is controlling running order of whole system. It can also avoid battery overcharging or over discharging. In some district, it has the action of temperature correction. Some other additive function such as light control switch、time control switch is selectable .

BATTERY

Commonly we use lead-acid battery. In micro-system we can also use nickel-hydrogen battery、nickel-cadmium battery or lithium battery. Its action is storing electric energy and releasing when need.

INVERTER

The output is 120VDC, 240VDC, 360VDC higher voltage in solar panel power supply. In order to supply electric energy to electric equipment of 220VAC or other supply standard，it has to change DC current into AC current. So it needs DC-AC inverter.

Basic Factors of the System

- It is a kind of independent off-grid power supply system, has the function to store

electric power, adapt to the area where there is no electricity grid and where there is lack of electric power.

- The Solar Panel is made of high efficiency Silicon battery, the converting efficiency is over 15%, and lifetime over 20 years, quality complies with the IEC61215 Criteria.
- Storage Battery is maintenance-free type Lead-Acid Battery, it is designed for solar system deep recycling use, and quality complies with IEC61427 Criteria.
- Inverter output the pure Sin Wave, can be connected to all kinds of loads, including the sensitive loads and capacitive loads. The solar power charging/discharging module is inserted into the whole system, the system contains multi-function self-protection, and quality complies with IEC61277 Criteria.

Basic Configuration

System Configuration

Type	Solar Panel Capacity （peak watt）		Inverter Power	Batteries Volt/Ah	Daily Average Power Supply （watt*hours）
	General	Arrange			
PV1600	1600 Wp	1500 Wp～1900 Wp	3000W	120V/100Ah	6500Wh
	10PCS MSE-A2-160	10PCS MSE-A2-150~ MSE-A2-190			
PV2400	2400 Wp	2200 Wp～2800 Wp	5000W	240V/80Ah	9700Wh
	20PCS MSE-A1-120	20PCS MSE-A1-110~ MSE-A2-140			
PV3600	3600 Wp	3200 Wp～4300 Wp	8000W	240V/120Ah	14500Wh
	20PCS MSE-A3-180	20PCS MSE-A3-160~ MSE-A3-215			
PV4800	4800 Wp	4500 Wp～5700 Wp	10000W	360V/100Ah	19400Wh
	30PCS MSE-A2-160	30PCS MSE-A2-150~ MSE-A2-190			

Configuration Factors

- Solar Panels combination can be adjusted according to your local sunlight radiation. Case 1. Local year average sunlight radiation is over 5.0kWh/m^2/day, we suggest the min. configuration; Case 2. Local year average sunlight radiation is less than 4.0kWh/m^2/day, we suggest the max. configuration. Our general configuration is based on Local year average sunlight radiation of 4.7kWh/m^2/day.
- Solar power supply formula: Daily Power Supply of System=Total Solar Panel Wp* Year Average Daily Sunlight Radiation* System Efficiency (86%); System Efficiency=100%-[Solar Charging Loss (4%) + Inverter Loss (10%)]
- Please choose the suitable configuration as per your daily actual power consumption.

- Advice

  Please use the energy-saving appliances, to lessen the power consumption.

  Please lessen the daily power consumption, to get more power storage for night use.
- Special Purpose and Specification

  We are design the solar power configuration as per customers' requests.

Parameter of System Main Components

SOLAR MODULES

- The modules are designed in consistent with IEC61215:1993 standards, manufactured. With proven materials and tested to ensure electrical performance and service life.
- For large modules, bypass diode is installed to avoid hot spot effect.
- Sin film deposited on the front surface by PECVD acts as antireflection coating and gives a uniform dark blue appearance
- Cells are laminated between a sheet of high transmissivity low-iron 3mm thick tempered glass and sheet of TPT material by two sheets of EVA to prevent moisture penetration into the module.
- Heavy duty anodized aluminum frame provides high wind resistance and convenient mounting access.
- A waterproof versatile junction box provides flexibility of connection.
- All of modules are tested by appearance and electronic technical test, the good quality of module can be confirmed.

Specification of Solar Modules

Module Type	Pm(Wp)±5%	Vmpp(V)	Impp(A)	Voc(V)	Isc(A)	Module size(mm)	NET(kg)
ST-MSE-A1-110	110	16.9	6.51	21	7.27	1480*670*40	11.9
ST-MSE-A1-120	120	17.3	6.94	21.4	7.67	1480*670*40	11.9
ST-MSE-A1-130	130	17.7	7.36	21.8	8.05	1480*670*40	11.9
ST-MSE-A1-140	140	18.1	7.75	22.2	8.39	1480*670*40	11.9
ST-MSE-A2-150	150	22.7	6.61	28.2	7.4	1320*992*46	15.7
ST-MSE-A2-160	160	23.1	6.94	28.6	7.8	1320*992*46	15.7
ST-MSE-A2-170	170	23.4	7.26	28.9	7.9	1320*992*46	15.7
ST-MSE-A2-180	180	23.8	7.56	29.4	8.2	1320*992*46	15.7
ST-MSE-A2-190	190	24.3	7.84	29.8	8.5	1320*992*46	15.7
ST-MSE-A3-160	160	25.2	6.36	31.3	7.2	1482x992x46	18
ST-MSE-A3-170	170	25.6	6.66	31.7	7.4	1482x992x46	18
ST-MSE-A3-180	180	25.9	6.94	32.1	7.8	1482x992x46	18
ST-MSE-A3-190	190	26.3	7.22	32.5	8	1482x992x46	18
ST-MSE-A3-200	200	26.7	7.49	33	8.2	1482x992x46	18

ST-MSE-A3-210	210	27.1	7.75	33.4	8.4	1482x992x46	18
ST-MSE-A3-215	215	27.3	7.88	33.6	8.5	1482x992x46	18

Inverter / Controller

- High frequency and IGBT high-power technology.
- Inverter converting efficiency over 95%.
- Overcharge and over discharge protection. Overload and short circuit protection
- LED/LCD status display
- N + X parallel connection
- Cold start
- Intelligent slot for SNMP adaptor(optional)
- Online maintenance service

The Specification of Solar Inverter

Model		**ST-MSP3-212A**	**ST-MSP5-224A**	**ST-MSP8-224A**	**ST-MSP10-236A**
Capacity		4300VA	7200VA	12000VA	15000VA
Power		3000W	5000W	8000W	10000W
Input	Voltage Range (DC Voltage)	105V~155V	210V~315V	210V~315V	315V~465V
	Solar In admit current	20A	15A	25A	20A
	Battery In admit current	45A	32A	60A	60A
	Charge wastage	Less than 4%			
Output	Voltage range (AC Voltage)	220(230)V±10% 50Hz			
	COSΦ	≥0.95			
	Waveform	Pure sine wave			
	Wave Form distortion	Linear load<3%			
		Non linear load<6%			
Overload protection		>130%→5s >150%→100ms			
Battery		Deep cycle lead-acid maintenance-free batteries			
External battery voltage		120V	240V	240V	360V
Ambient	Temperature	-10°C ~ 40°C			
	Humidity	0 ~ 95%			
Size (WxDxH) mm		320*550*750			
Weight(kg)		39	43	48	55

VRLA BATTERIES

Technical feature

- AGM technology applied in MB range batteries.
- Front-access terminal connections for fast and easy installation and maintenance
- Suitable for 19", 23" rack or cabinet
- Excellent special lead-tin-calcium formula alloy for Grids and plates
- Mircoporous glass mats in low resistance as separator
- Self-regulating pressure relief valve
- 12+ years expectant Life under full float service at 77°F(25°C)

Products characteristics

- Recommended float charge voltage for 12V battery: 2.25Vpc at 77°F(25°C)
- Self discharge rate: < 2% per month at 77°F(25°C)
- Shelf life: 6 six months at 68°F(20°C)
- Valve regulated system, no water addition needed

The specs of batteries

Battery Model	6-GFM-85F	6-GFM-100F	6-GFM-125F
Rated Capacity (10hour rate) to 1.80V/cell @25^{0}C(77^{0}F)	85Ah	100Ah	125Ah
Internal Resistance	About 6.73mΩ	About 5.4mΩ	About 3.88mΩ
Typical Weight	30kg	39kg	49kg
Size(L*W*H)	395*105*270	558*125*227	558*125*270
Operating Temperature	Operation(maximum) -40^{0}C to 55^{0}C (-40^{0}F to 131^{0}F)		
	Operation(recommended) 15^{0}C to 25^{0}C (59^{0}F to 77^{0}F)		
	Storage -20^{0}C to 40^{0}C (-4^{0}F to 104^{0}F)		
Float Voltage	2.25V/cell @25^{0}C (77^{0}F)		
Recommended Maxim Charging Current Limit	21.25A		
Self Discharge	The residual capacity is above 90% after 90 days storage25^{0}C (77^{0}F)		