

# ES-11KW SOLAR INVERTER/CHARGER



1. Built-in MPPT solar controller for maximum power point tracking, mppt efficiency is up to 99%.
2. 64-bits DSP Intelligent control chip.
3. Result fetched from effective value, not average value.
4. Photoelectricity isolation circuitry technology.
5. Switching power is supplied by the independent system.
6. True over temperature protection.
7. The full bridge rectifier and mainboard structure are highly optimized. Input and output circuits are isolated.
8. Strong loading capacity with a true onetime soft start.
9. New and original electronic components.
10. Internal circuit lines and signal lines are based on plug-pull blocks, not welding.

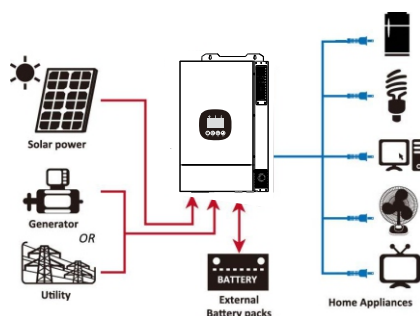


Figure 1 Basic hybrid PV System Overview

## ES-SERIES SOLAR INVERTER SELECTION GUIDE

Table 1 Line Mode Specifications	
MODEL	ES-48113M160
Rated Power	11KW
Input Voltage Waveform	Sinusoidal (utility or generator)
Nominal Input Voltage	230Vac
Low Loss Voltage	170Vac±7V (UPS) 90Vac±7V (Appliances)
Low Loss Return Voltage	180Vac±7V (UPS); 100Vac±7V (Appliances)
High Loss Voltage	280Vac±7V
High Loss Return Voltage	270Vac±7V
Max AC Input Voltage	300Vac
Max AC Input Current	80A
Nominal Input Frequency	50Hz / 60Hz (Auto detection)
Low Loss Frequency	40± 1Hz
Low Loss Return Frequency	42± 1Hz
High Loss Frequency	65± 1Hz
High Loss Return Frequency	63± 1Hz
Output Short Circuit Protection	Line mode: Circuit Breaker Battery mode: Electronic Circuits
Efficiency (Line Mode)	>95% ( Rated R load, battery full charged )
Transfer Time	10ms typical (UPS); 20ms typical (Appliances)

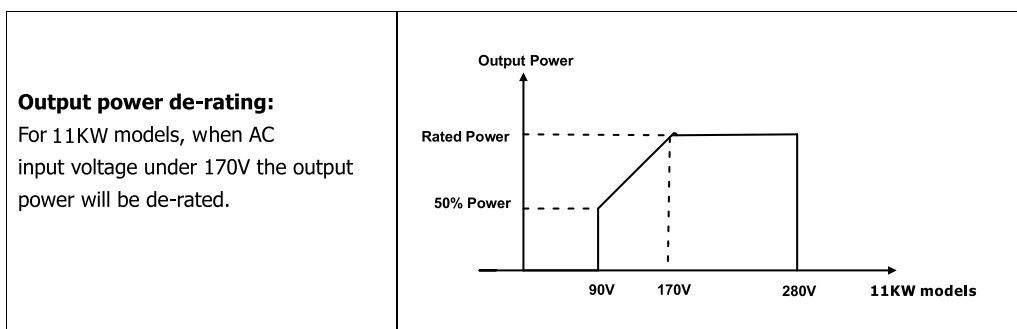
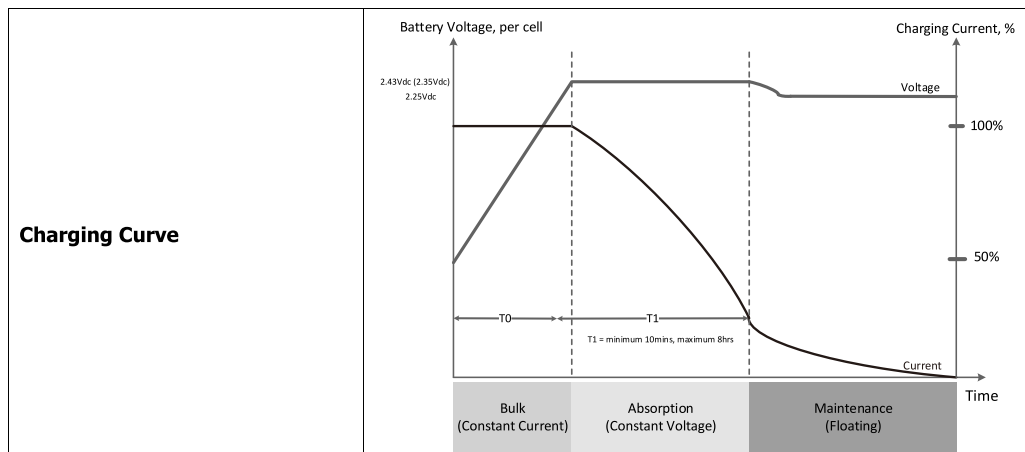


Table 2 Inverter Mode Specifications

<b>Output Voltage Waveform</b>	Pure Sine Wave
<b>Output Voltage Regulation</b>	230Vac±5%
<b>Output Frequency</b>	60Hz or 50Hz
<b>Peak Efficiency</b>	93%
<b>Overload Protection</b>	100ms@≥205% load; 5s@≥150% load; 10s@110%~150% load
<b>Surge Capacity</b>	2* rated power for 5 seconds
<b>High DC Cut-off Voltage</b>	66Vdc
<b>Low DC Cut-off Voltage</b>	44Vdc
<b>Nominal DC Input Voltage</b>	48Vdc
<b>Cold Start Voltage</b>	46.0Vdc
<b>Low DC Warning Voltage</b>	
@ load < 20%	46.0Vdc
@ 20% ≤ load < 50%	42.8Vdc
@ load ≥ 50%	40.4Vdc
<b>Low DC Warning Return Voltage</b>	
@ load < 20%	48.0Vdc
@ 20% ≤ load < 50%	44.8Vdc
@ load ≥ 50%	42.4Vdc
<b>Low DC Cut-off Voltage</b>	
@ load < 20%	44.0Vdc
@ 20% ≤ load < 50%	40.8Vdc
@ load ≥ 50%	38.4Vdc
<b>High DC Recovery Voltage</b>	64Vdc
<b>High DC Cut-off Voltage</b>	66Vdc
<b>DC Voltage Accuracy</b>	+/-0.3V@ no load
<b>THDV</b>	<5% for linear load, <10% for non-linear load @ nominal voltage
<b>DC Offset</b>	≤100mV

Table 3 Charge Mode Specifications

<b>Charging Current (UPS)</b> @ Nominal Input Voltage		80A
<b>Bulk Charging Voltage</b>	<b>Flooded Battery</b>	58.4Vdc
	<b>AGM / Gel Battery</b>	56.4Vdc
<b>Floating Charging Voltage</b>		54Vdc
<b>Overcharge Protection</b>		66Vdc
<b>Charging Algorithm</b>		3-Step



Solar Input	
MODEL	11KW
Rated Power	5500KWx2
Max. PV Array Open Circuit Voltage	500Vdc
PV Array MPPT Voltage Range	90Vdc~450Vdc
Max. Input Current	27Ax2
Start-up Voltage	120Vdc+/- 5Vdc
Maximum Charging Current	80Ax2
Power Limitation	<p>The graph shows PV Current on the y-axis (0 to 27A) and MPPT temperature on the x-axis (75°C to 85°C). The current is constant at 27A from 75°C to 85°C, then drops to 9A. A dashed line indicates 9A at 75°C.</p>

Table 4 General Specifications	
MODEL	11KW
Safety Certification	CE
Operating Temperature Range	-10°Cto40°C
Storage temperature	-15°C~ 60°C
Humidity	5% to 95% Relative Humidity (Non-condensing)
Product size(D.W.H)	430mm*618mm*152mm
Packing size(D.W.H)	525mm*700mm*225mm
N.W(kg)	18.3KG
G.W(kg)	20.7KG

Table 5 Parallel Specifications (Parallel model only)	
Max parallel numbers	6
Circulation Current under No Load Condition	Max 2A
Power Unbalance Ratio	<5% @ 100% Load
Parallel communication	CAN
Transfer time in parallel mode	Max 50ms
Parallel Kit	YES

**Note:** Parallel feature will be disabled when only PV power is available