

# PowMr 5KW Solar Inverters

## All-In-One MPPT Charger Controller POW-VM5K-III

Brand ..... PowMr  
 Battery Voltage..... 48V  
 Battery Type..... LiFePO4 Batteries  
                                 Flooded Batteries  
                                 Gel Batteries  
                                 Lead-acid Batteries  
                                 User Mode  
 Load workout with Battery..... Yes  
 Inverter Type..... High frequency Inverters  
 Phase..... Single Phase  
 AC output..... 230Vac±5%  
 Rated Load Power ..... 5000W  
 Max Panel Input Volt..... 450V-500V  
 PV Terminal Charging Mode..... build-in MPPT  
   Solar Charge Controller  
 Max Solar Panel Input Power..... 5000W  
 AC Charging Current..... 60 Amps  
 PV Charging Current..... 100amps  
 AC+PV Charging Current..... 100Amps  
 Wifi/Bluetooth Module ..... Wifi Module(Optional)  
   Bluetooth Inside  
 Warehouse..... GER Warehouse  
   USA Warehouse



This is a multi-function Pure sine wave inverter, combining functions of inverter, solar charger, and battery charger to offer uninterruptible power support in a single package.

Support 48V lead-acid, LiFePO4, GEL battery and batteryless configuration

### Important NOTE:

when inverter work without a battery, LCD will show error bP, this is OK, the inverter will operate normally. Don't worry!



### 5000W Solar Hybrid Inverter

Max.PV Input 5000W, 18A, 500V DC, Max PV Output 80A  
Single phase 220V Output, NOT support 110V!

- All in One Inverter with **80A MPPT** Charge Controller
- Battery Charging Priority can be Set  
( PV First, Solar and Utility, and Only Solar )
- Load Supply Priority can be set  
( Utility Priority/Solar First/ SBU Priority )
- Word with 48V lead-acid/Lithium/User and No Battery
- Configurable AG/PV Output usage timer and prioritization

50/60Hz Auto  
Frequency Range

Over Heat  
Protection

Short Circuit  
Protection

Overload  
Protection

Over Current  
Protection

48V DC to 230V AC  
OFF-GRID SOLAR INVERTER

## Features

- Configurable input voltage ranges for home appliances and personal computers via the LCD control panel
- Configurable AC/Solar Charger priority/battery charging current based on applications via the LCD control panel
- Compatible with utility mains or generator power
- Auto restart while AC is recovering
- Overload / Over temperature / short circuit protection
- Smart battery charger design for optimized battery performance
- Cold start function
- The removable LCD control module
- Multiple communication ports for BMS (RS485, CAN-BUS, RS232)
- Built-in Bluetooth for mobile monitoring (Requires Android App), OTG USB function, dusk filters
- Configurable AC/PV Output usage timer and prioritization

### PV Module Selection:

When selecting proper PV modules, please be sure to consider the following parameters:

1. Open circuit Voltage (Voc) of PV modules not to exceeds maximum PV array open circuit voltage of the inverter.
2. Open circuit Voltage (Voc) of PV modules should be higher than the start-up voltage.

Circuit voltage (Voc) of PV modules should be higher than the start-up voltage.			
INVERTER MODEL	1.5KW	3KW	5KW
Max. PV Array Power	2000W	4000W	5000W
Max. PV Array Open Circuit Voltage	400Vdc	500Vdc	
PV Array MPPT Voltage Range	120Vdc~380Vdc	120Vdc~450Vdc	
Start-up Voltage	150Vdc +/- 10Vdc		

Take the 250Wp PV module as an example. After considering above two parameters, the recommended module configurations are listed in the table below.

Solar Panel Spec. (reference)	SOLAR INPUT (For 1.5KW, Min in series: 5 pcs, max. in series: 8 pcs. For 3KW/5KW, Min in series: 6 pcs, max. in series: 12 pcs.)	Q'ty of panels	Total input power
- 250Wp			
- Vmp: 30.1Vdc			
- Imp: 8.3A	6 pcs in series	6 pcs	1500W
- Voc: 37.7Vdc	8 pcs in series	8 pcs	2000W
- Isc: 8.4A	12 pcs in series	12 pcs	3000W
- Cells: 60	8 pieces in series and 2 sets in parallel	16 pcs	4000W
	10 pieces in series and 2 sets in parallel (only for 5KVA model)	20 pcs	5000W

### To configure charger source priority



Solar First

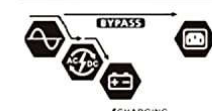


Solar and Utility



Only Solar

### To configure load power source priority-(OUTPUT Setting)



#### Utility first

Utility will provide power to the loads as first priority. Solar and battery energy will provide power to the loads only when utility power is not available.



#### Solar first

Solar energy provides power to the loads as first priority. If solar energy is not sufficient to power all connected loads, Utility energy will supply power to the loads at the same time



#### SBU priority

Solar energy as first priority, then battery, then Utility power.

## Charger source priority: To configure charger source priority

If this inverter/charger is working in Line, Standby, or Fault mode, the charger source can be programmed as below:

### Solar first:

Solar energy will charge the battery as first priority. The utility will charge the battery only when solar energy is not available.

### Solar and Utility (default)

Solar energy and utility will charge batteries at the same time.

### Only Solar:

Solar energy will be the only charger source no matter utility is available or not.

If this inverter/charger is working in Battery mode, only solar energy can charge the battery. Solar energy will charge the battery if it's available and sufficient.

**(Single phase 220V AC /A Hot Leg, NOT Support 110V !!! )**



**PowMr off-grid all-in-one solar hybrid inverter** can be widely used in DC to AC areas, such as solar AC power system, vehicle system, RV power supply, security monitoring system, emergency lighting system, field power system, household power system, etc.

- **(Single phase 220V AC /A Hot Leg, NOT Support 110V !!! )**
- **This PowMr off-grid solar inverter all-in-one does not support parallel operation, and does not support phase separation!**

## Line Mode Specifications and Inverter Mode Specifications

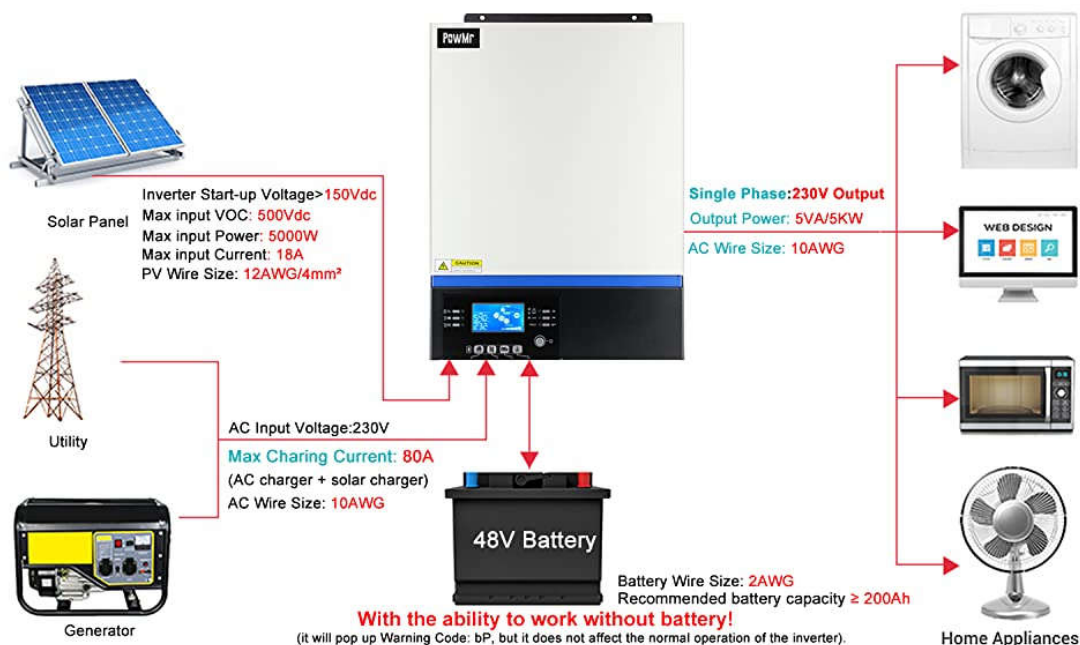
Input Voltage Waveform	Sinusoidal (utility or generator)
Nominal Input Voltage	230Vac
Low Loss Voltage	170Vac± 7V (UPS); 90Vac± 7V (Appliances)
Max AC Input Voltage	300Vac
Nominal Input Frequency	50Hz / 60Hz (Auto-detection)
Output ShortCircuit Protection	Circuit Breaker
Charging Algorithm	3-Step
AC Charging Current (Max)	60Amp
Output Voltage Waveform	Pure Sine Wave
Output Voltage Regulation	230Vac± 5%
Output Frequency	50Hz
Surge Capacity	2* rated power for 5 seconds

## PV (Solar) Charging

Max.PV open circuit voltage	500Vdc
Start-up Voltage	150Vdc +/- 10Vdc
MPPT voltage	150-450Vdc
Max. PV Array Power	5000W
Max input current	18A
Max Charging Current	80Amp (AC charger plus solar charger)
Recommended battery capacity	≥ 200Ah
battery cable size	2AWG/38mm²
PV/AC input wire diameter	10-12AWG
Weight (kg)	10
Humidity	5% to 95% Relative Humidity (Non-condensing)
Operating Temperature Range	-10°C to 50°C
Size (L*W*D)	115 x 300 x 400mm

(Single phase 220V AC /A Hot Leg, NOT Support 110V !!!)

The solar panels must be connected in series, the maximum input current is 18A



**PowMr 230V off-grid hybrid inverter support 48V lead-acid, LiFePO4 battery and without batter !**  
**(Important NOTE: when inverter work without a battery, LCD will show error bP, this is ok, the inverter will operate normally. Don't worry! )**  
**Start-up Voltage: 150Vdc +/- 10Vdc**

**The Solar panels must be connected in series, the max input current is 18A!**

**CAUTION!!**

- Shock Hazard: Installation must be performed with care due to high battery voltage in series.
- Do not place anything between inverter terminals and the ring terminals. Otherwise, overheating may occur.
- Before making the final DC connection or closing DC breaker/disconnector, be sure that the positive (+) must be connected to positive (+) and negative (-) connected to the negative (-)
- Before connecting to the AC input power source, please install a separate AC breaker between the inverter and the AC input power source. The recommended spec of AC breaker is 32A for 3KW and 50A for 5KW.
- `<="" span="" style="-webkit-tap-highlight-color: rgba(0, 0, 0, 0); box-sizing: border-box;">`
- `>span class="a-list-item">`Never install the all-in-one solar charge inverter and lead-acid battery in the same confined space! Also do not install in a confined place where battery gas may collect.
- Ensure that there is enough air flowing through the heat sink, and space of at least 200mm to the left and right air outlets of the inverter shall be left to ensure natural convection heat dissipation.
- **(Single phase 220V AC /A Hot Leg, NOT Support 110V !!! )**
- **This PowMr off-grid solar inverter all-in-one does not support parallel operation, and does not support phase separation!**