

Model # APS-4048SW-M60

1-Ph, 230V/50Hz, 4KW-48VDC Pure Sine Wave with Large LCD Inverter-Combined Charger & Built-in Advanced MPPT Solar Charge Controller



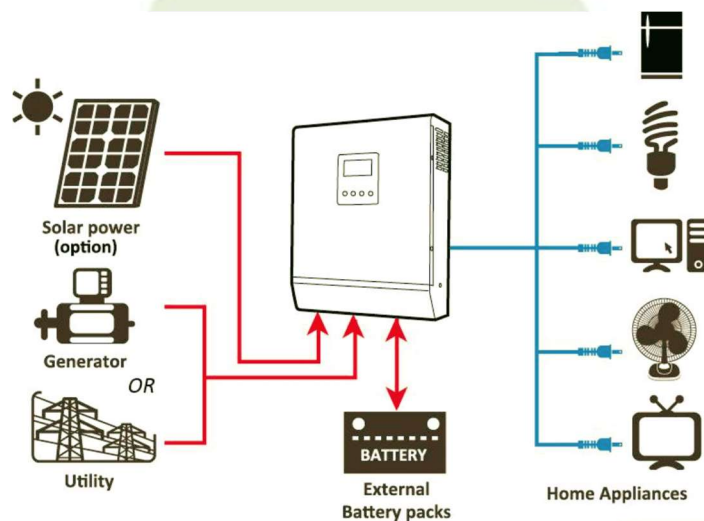
Product Description

Magnizon APS-4048SW-M60 inverter/charger with dual operational modes with built in Advanced MPPT solar charge controller minimizes the hassles of Solar installation especially in hybrid environments. Large LCD display with functional keys to select various parameters and displays real time information, selecting the modes of operation, Battery charger current settings etc. along with operational schemes. Day time will be supported through solar panels and night time or rainy days will be with batteries and Utility power with intelligent microprocessor based automatic switching. Reliable pure copper based transformer with advanced IGBT technology design and frequency controlled power, very much compatible to all varieties of loads: resistive/inductive loads such as refrigerators, motors, pumps, compressors and laser printers as well as electronic loads like TV's, Computers, power tool and battery chargers. Smart micro controller based 3-stage built in charging system properly charge and maintain battery bank in the absence of solar power or rainy days. The charge rate is selectable so you can use a variety of battery sizes and types to fit your back up time requirements.

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Applications

- Well designed for Off-grid/hybrid applications where solar energy systems connected along with grid or generator sets.
- Versatile inverter/charger with pure sine wave system with seamless transfer switching serves as an automotive inverter for RVs, trucks, standalone alternative power source with high end back up times with various battery technologies (VRLA, GEL, Deep cycle, Ni-Cd and many more)
- Perfectly suitable for Off-grid and Hybrid applications.
- Telecom, industrial and ATM applications
- Small PV plants for houses/villas and small offices.
- Remote closets and small computer room applications.
- Mining, fluid flow management, Oil & gas applications.

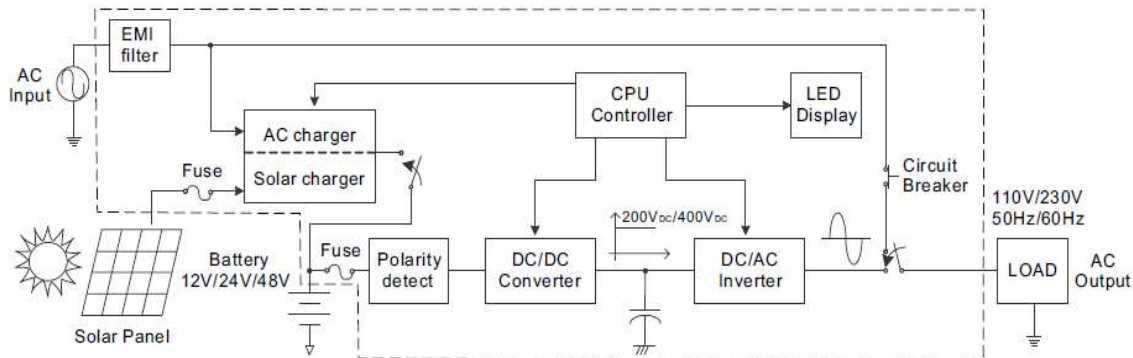


Key Feature

- 48V DC or 230V AC input; 230V, 50 Hz output (hardwired)
- 4KW continuous output with double boost capacity.
- Microprocessor controlled Smart volume design
- Built in power management software and communication cable with the unit
- Dry contact communications system for remote management & SCADA applications
- Automatic generator start/stop function
- Built in 60Amp -MPPT solar charge controller & Strong Utility based charger rating upto 90Amp
- Dual Operational Mode UPS/ Solar Inverter Mode
- Robust design for Hybrid configuration
- Pure sine wave output
- High Efficiency Using Line-Interactive Circuit Topology (Full Bridge Topology)
- Quiet, high efficiency operation, high surge capacity and low idle current
- CE Safety
- Selectable input voltage range and frequency according to city power in your country
- Charging current is settable according to your battery type
- Configurable AC/Solar input priority via LCD setting
- Compatible to mains voltage or generator power
- Auto restart while AC is recovering
- Overload, over temperature and short circuit protection
- Smart charging system optimizes battery performance
- Cold start function

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System Control Scheme



System Operational Modes

- **Solar 1st Mode (Solar mode)**

In built hybrid compatibility enables user to choose Solar 1st mode. In this mode, Solar energy provides power to the loads as first priority, If solar energy is not sufficient to power all connected loads, battery energy will supply power to the loads at the same time. Utility provides power to the loads only when any one condition below

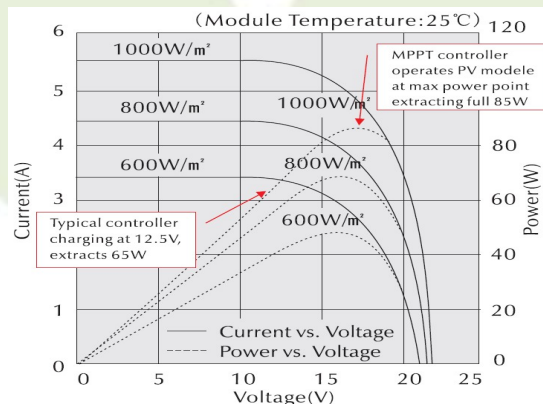
- Solar energy is not available
- Battery voltage drops to either low-level warning or the setting point in program 12.

- **Utility 1st Mode (UPS mode)**

In this mode, APS-M series inverters will provide power to the load from Utility as first priority. Solar and battery energy will provide power to the loads only when utility power is not available.

Solar Charge Controller Maximum Power Point tracking (MPPT) Function

The APS-M series hybrid inverter combined with MPPT (maximum power point tracking) solar charge controller which is micro-processor based control system designed to implement MPPT logics. High engineered fuzzy logic control system increases the 30% additional charge current compared to traditional solar charge controller below is the graphical explanation pertaining to the charge currents. High efficiency (minimum of 97% at any given charge current) ensures the effective utilization of solar power being generated by the solar panels.



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Specification

Magnizon Model	APS-4048SW-M60
Nominal Power	4000W
AC Input	
Input Voltage Waveform	Sinusoidal (utility or generator)
Nominal input Voltage	120/230VAC
Low Line Disconnect	85Vac±4%(Normal) or 80Vac±4% (Wide) for 120V
	184Vac±4%(Normal) or 135Vac±4%(Wide) for 230V
High Line Disconnect	136Vac±4%(Normal) or 140Vac±4%(Wide) for 120V
	263Vac±4%(Normal) or 263Vac±4%(Wide) for 230V
Max AC input Voltage	Max270Vac for 230V
Frequency	50Hz:41-54Hz, 60Hz:51-64Hz
AC Output	
Output Voltage Waveform	Pure Sine wave
Power Factor	unity (1.0)
Nominal Output Voltage (V)	HV:230Vac ±10%rms
Nominal Output Frequency (Hz)	50Hz ± 0.3Hz, 60Hz ± 0.3Hz
Solar Charger specs(MPPT)	
Rated Charge Current	60A /120A(for 6KW model)
PV Input Voltage range	60-110VDC for 48V
Max. PV open circuit array voltage	110Vdc for 48V DC
Charger Technology	Advanced MPPT technology
PV Low Voltage Re-connect	PV≥Bat.V+3V
PV Low Voltage Disconnect	PV≤Bat.V
Efficiency	≥97%
AC Mode Charger specs	
Nominal Charger Current	50A
	5 stages adjustable charging current

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Over charge Protection	Bat.V \geq 31.0VDC for 24V battery, Bat.V \geq 62.0VDC for 48V
	battery beeps 0.5s every 1s & fault after 60s
Efficiency	
Efficiency(Battery Mode)	\geq 87%
Efficiency (Line Mode)	$>$ 98%
Battery Voltage Details	
Nominal DC input Voltage	24/48VDC
Low Battery Alarm	21VDC \pm 0.6VDC for 24VDC
	42VDC \pm 1.2VDC for 48VDC
High DC input	32VDC \pm 0.6VDC for 24VDC
Alarm & Fault	64VDC \pm 1.2VDC for 48VDC
Transfer Time	6-8ms(max)
System Specs	
Over-Load Protection	110% $<$ load $<$ 150%, beeps 0.5s every 1s, and Fault after 60s off the output, load $>$ 150%, beeps 0.5s every 1s, and Fault after 20s
Output Short Circuit Protection	Current limit (Fault after 10s)
Surge Rating(10s)	1:3(VA)
Power Saver	Load \leq 25W(Enabled on "P/S auto" Setting of Remote control)
Protections	Low battery, over charging, over load, over temp
Operating Temperature Range	0 $^{\circ}$ C \sim 40 $^{\circ}$ C
Storage Temperature	- 15 $^{\circ}$ C \sim 60 $^{\circ}$ C
Operation humidity	5% to 95%(non-condensing)
Audible Noise	60dB max
cooling	Forced air, variable speed fan
Dimension(L*W*H)	530*400*190mm
Net Weight(kg)	30.8
Warranty	2 Year limited warranty Extendable up to 4 years
Safety	EMC/CE/ROHS/ISO9001/ISO14001
Certification/Conformity	
Disturbance at Mains Terminals	EN61000-6-3:2007+ A1: 2011+ AC:2012

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Radiated Disturbance	EN61000-6-3:2007+ A1: 2011+ AC:2012
Harmonic Current Emission	EN61000-3-12: 2011
Voltage fluctuations & flickering	EN61000-3-11: 2000
Electrostatic Discharge (ESD)	IEC 6100-4-2:2008
Radio-frequency & continues radiated disturbances	IEC 6100-4-3:2006 + A1:2007 + A2:2010
EFT/B Immunity	IEC 6100-4-4:2012
Surge immunity	IEC 6100-4-5:2014
Conducted RF immunity	IEC 6100-4-6:2013
Power frequency magnetic field	IEC 6100-4-8:2009
Voltage DIP, >95% reduction	IEC 6100-4-11:2004
Voltage DIP, >30% reduction	IEC 6100-4-11:2004
Voltage Interruption	IEC 6100-4-11:2004