

## Model # APS-1512SW-M60

**1-Ph, 230V/50Hz, 1500W-12VDC pure sine wave with large LCD Inverter -Combined charger & built-in Advanced MPPT solar charge controller**

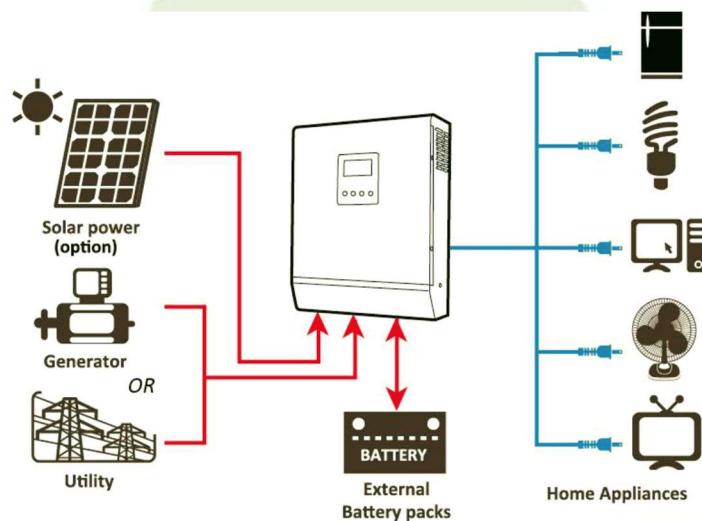


### Product Description

Magnizon APS-1512SW-M60 series 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.

## Applications

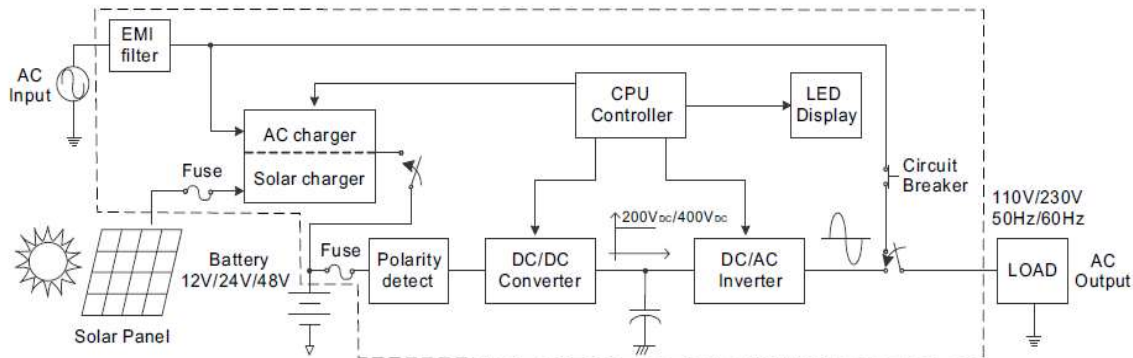
- Well designed for Off-grid/hybrid applications where solar energy systems connected along with grid or generator sets.
- Versatile inverter/charger with pure sine wave system with seamless transfer switching serves as an automotive inverter for RVs, trucks, standalone alternative power source with 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

- 12V DC or 230V AC input; 230V, 50 Hz output (hardwired)
- 1500W 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 50Amp
- 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

## System Control Scheme



## System Operational Modes

### • Solar 1<sup>st</sup> Mode (Solar mode)

In built hybrid compatibility enables user to choose Solar 1<sup>st</sup> 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

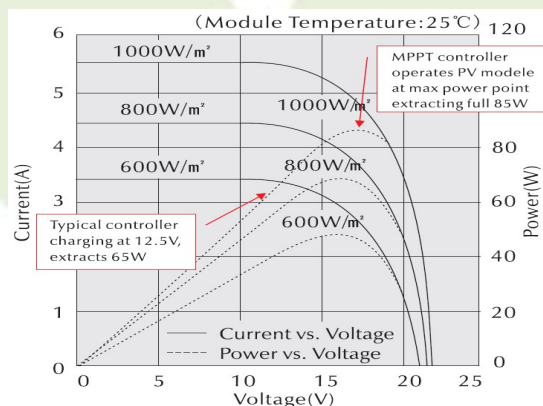
- Solar energy is not available
- Battery voltage drops to either low-level warning or the setting point in program 12.

### • Utility 1<sup>st</sup> 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.



## Specification

Magnizon Model	APS-1512SW-M60
Nominal Power	1500W
AC Input	
Input Voltage Waveform	Sinusoidal (utility or generator)
Nominal input Voltage	120/230VAC
Low Line Disconnect	85Vac $\pm$ 4%(Normal) or 80Vac $\pm$ 4% (Wide) for 120V
	184Vac $\pm$ 4%(Normal) or 135Vac $\pm$ 4%(Wide) for 230V
High Line Disconnect	136Vac $\pm$ 4%(Normal) or 140Vac $\pm$ 4%(Wide) for 120V
	263Vac $\pm$ 4%(Normal) or 263Vac $\pm$ 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 $\pm$ 10%rms
Nominal Output Frequency (Hz)	50Hz $\pm$ 0.3Hz, 60Hz $\pm$ 0.3Hz
Solar Charger specs(MPPT)	
Rated Charge Current	60A
PV Input Voltage range	15VDC-27.5VDC for 12VDC
Max. PV open circuit array voltage	28Vdc for 12V DC
Charger Technology	Advanced MPPT technology
PV Low Voltage Re-connect	PV $\geq$ Bat.V+3V
PV Low Voltage Disconnect	PV $\leq$ Bat.V
Efficiency	$\geq$ 97%
AC Mode Charger specs	
Nominal Charger Current	50A
	5 stages adjustable charging current
Over charge Protection	Bat.V $\geq$ 31.0VDC for 12V battery

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	battery beeps 0.5s every 1s & fault after 60s
<b>Efficiency</b>	
<b>Efficiency(Battery Mode)</b>	≥87%
<b>Efficiency (Line Mode)</b>	> 98%
<b>Battery Voltage details</b>	
<b>Nominal DC input Voltage</b>	12V DC
<b>Low Battery Alarm</b>	10.5VDC±0.6VDC for 12VDC
<b>High DC input Alarm &amp; Fault</b>	16VDC±0.6VDC for 12VDC
<b>Transfer Time</b>	6-8ms(max)
<b>System specs</b>	
<b>Over-Load Protection</b>	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
<b>Output Short Circuit Protection</b>	Current limit (Fault after 10s)
<b>Surge Rating(10s)</b>	1:3(VA)
<b>Power Saver</b>	Load≤25W(Enabled on "P/S auto"Setting of Remote control)
<b>Protections</b>	Low battery, over charging, over load, over temp
<b>Operating Temperature Range</b>	0°C~40°C
<b>Storage Temperature</b>	- 15°C~60°C
<b>Operation humidity</b>	5% to 95%(non-condensing)
<b>Audible Noise</b>	60dB max
<b>cooling</b>	Forced air, variable speed fan
<b>Dimension(L*W*H)</b>	480*336*190mm
<b>Net Weight(kg)</b>	22
<b>Warranty</b>	2 Year limited warranty Extendable up to 4 years
<b>Safety</b>	EMC/CE/ROHS/ISO9001/ISO14001
<b>Certification/Conformity</b>	
<b>Disturbance at Mains Terminals</b>	EN61000-6-3:2007+ A1: 2011+ AC:2012
<b>LV Directives</b>	EN62109-1:2010, EN62109-2:2011
<b>Electromagnetic compatibility</b>	EN62040-2:2006
<b>Radiated Disturbance</b>	EN61000-6-3:2007+ A1: 2011+ AC:2012



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