



High Frequency Power Inverters

MP56050



MP56150



These instructions include the following models:

MP56015	150W	12V DC / 230V AC / 5V USB / BS socket
MP56030	300W	12V DC / 230V AC / 5V USB / BS socket
MP56050	500W	12V DC / 230V AC / 5V USB / BS socket
MP56080	800W	12V DC / 230V AC / 5V USB / BS socket
MP56100	1000W	12V DC / 230V AC / 5V USB / Twin BS sockets
MP56150	1500W	12V DC / 230V AC / 5V USB / Twin BS sockets

Power inverter 12 volt DC to 230V AC Modified Sine Wave

INSTRUCTION MANUAL

Please read these instructions carefully and keep for future reference.

A more detailed instruction leaflet is available on our website:

www.maypole.ltd.uk



1

RISK OF FIRE OR EXPLOSION

- Never attempt to operate the inverter from a power source other than a 12V battery.
- Do not use the inverter near any source of flammable materials, fumes or gases.
- Keep the operating area completely clear of combustible materials.
- Keep dry! Store and use indoors only, do not expose to rain or moisture.
- Avoid placing the inverter near sources of heat or in a direct Sunlight.
- Ensure that the inverter is well ventilated during use.

2

WARNING – GENERAL SAFETY

- Incorrect installation or misuse of the inverter may result in danger to the user or hazardous conditions.
- This inverter is intended for use as a continuous 230V AC power source within the rated capacity – any other use will invalidate warranty.
- Ensure that mains outlet socket, power switch, cables, clips or cigar lighter plug are regularly inspected and kept in good clean condition. Never use the inverter if any of these are worn or damaged.
- In order to avoid a hazard, replacement of parts (other than fuses) should only be carried out by the manufacturer. There are no other user-serviceable parts in this product.
- Fuses are located inside the inverter body and should only be replaced with fuses of the same value by a competent person after switching off and completely disconnecting the inverter.
- Be sure to position the outlet power cord to prevent it from being stepped on, tripped over or damaged.
- Never place the inverter directly above battery being used to supply power, gases from the battery will corrode and damage the inverter.
- Always switch off the inverter before connecting or disconnecting the battery leads.
- Follow instructions for safe use – electrical discharge from batteries can be dangerous.
- Battery electrolyte is acidic and likely to cause burns. The use of safety goggles and gloves when working with lead acid batteries is strongly advised.
- Remove metal items such as rings, necklaces and watches while working with batteries.
- This appliance is not for use by a person (including children) with reduced physical, sensory or medical capabilities or lack of experience or knowledge.
- **WARNING! Shock hazard-** Keep away from children. The inverter generates the same potentially lethal 230V AC power as a normal household wall outlet. Treat it as you would any other mains outlet.
- **WARNING! Hot surface.** The inverters housing may become uncomfortably warm, reaching 60°C under extended high power operation. Ensure that at least 5 cm of air space is maintained on all sides of the inverter. During operation, keep away from materials that may be affected by high temperature.

3 DESCRIPTION OF CONTROLS



- **(1)** ON/OFF power switch - This switch turns the inverter ON or OFF
- **(2)** Power indicator - Green LED, when illuminated, indicates the inverter has been turned on and is ready for use.
- **(3)** Protection indicator - Red LED, when illuminated, indicates that the inverter output is overloaded, the supply voltage is too high or too low. The inverter will switch off until the fault condition is corrected. An audible alarm will provide advance warning of overload or incorrect supply voltage.
- **(4)** 230Volt AC outlets - BS1363 socket, see table below for maximum output.
- **(5+, 5-)** Battery connections posts - When connecting the inverter, please observe the correct polarity when connecting the clips to the battery. Red terminal is Positive **(5+)** and black terminal is negative **(5-)**
- **(6)** High speed cooling fan - The fans cool the internal circuits automatically, while the inverter is in working.
- **(7)** Connecting Cable - Connection of the inverter to a 12V battery.
- **(8)** **USB** outlets – Providing 5V DC supply, see table below for maximum output.

4 OPERATING PRINCIPLES

- These inverters work in two stages.
- During the first stage the DC to DC converter increases the DC input voltage from the power source (e.g. a 12 volt battery) to 300 DC volts.
- In the Second stage the high voltage DC is converted to the (AC) power you need using advanced power MOSFET transistors or IGBT technology in a full bridge configuration. The result is excellent overload capability and the capacity to operate difficult reactive loads.
- The inverter is designed to provide years of trouble-free operation and includes automatic safety monitoring circuit to protect the inverter, your battery and any connected equipment from inadvertent overload conditions.

5 INSTALLATION

- Select a suitable location, free of dust and dirt. This is especially important if the inverter is used in a working environment.
- Leave a space of between 2 and 4cm to allow adequate air circulation.
- The power supply source needs to provide at least 10.5 Volt to maximum of 15.0 Volt DC and enough power output to operate the unit.
- To establish the power supply required (in amps), divide the rating of the connected appliances (in Watts) by the supply voltage (12).
- eg. Electric drill 230V 360W would be $360 / 12 = 30$ Amps supply will be required

6 CONNECTION TO THE POWER SUPPLY

Caution: The inverter must only be operated with a 12 Volt supply. It will not operate at 6 Volts and a 24 Volt supply will cause serious damage to the unit.

- Ensure that the ON/OFF switch (1) is in the OFF position
- Insert the cigarette lighter plug into the cigarette lighter socket or attach the power lead clips to the battery.
- If using crocodile clips, first connect the positive lead (RED) to the positive post of the battery (marked +, +ve or P). Then for vehicles with the battery still installed: connect the negative charging lead (BLACK) **to the vehicle** chassis (marked -, -ve or N), well away from the battery, fuel line, hot or moving parts.
- Or for batteries removed from the vehicle: Connect the negative charging lead (BLACK) to the negative post of the battery (marked -, -ve or N).
- After connecting the clips, rotate them slightly so as to remove any dirt or oxidization, thus ensuring a good contact.
- It is recommended that the vehicles engine is run regularly to avoid the battery from discharging. The power inverter switches off automatically and an alarm sounds when the battery voltage falls below 10 Volts.
- The power inverter can be operated when the motor is running or when the motor is at a standstill. It is possible that the power inverter may not work due to the voltage drop as the engine is started.

7 CONNECTING A 230V APPLIANCE TO THE INVERTER

- Insert the appliance plug into the socket of the power inverter.
- Press the "On" switch-the Green LED lights up, the unit is operational.
- Some inductive motors may require several start-up attempts. If the motor fails to start, switch the power inverter on and off quickly and repeatedly.

8 RECHARGEABLE POWER TOOLS

- Caution: Some rechargeable tools cannot be recharged using this power inverter and may cause damage the power inverter.
- When a rechargeable unit is used for the first time, observe the temperature of the charger and battery for approx. 10 minutes, if it becomes relatively hot, the unit cannot be operated using the power inverter.

9 USB POWER SUPPLY

- The power inverter has a 5V DC USB power outlet. This supply is available when the inverter is connected to a 12V power supply
- The maximum output of this supply is shown in the Technical Specifications table below.
- With a suitable connecting lead, this supply may be used for charging or powering devices, these may include a digital camera, tablet or mobile phone (Note: Some phones require a data connection and may not charge from a standard USB power supply).

TROUBLESHOOTING

<u>Problem: LOW OUTPUT VOLTAGE</u>	Note: Only use RMS voltmeters to measure the outgoing voltage
Cause	Recommendation
The power inverter is overloaded.	Reduce the outgoing output..
Incoming voltage is below 10.6 Volt.	Ensure adequate incoming voltage of over 10.6 volt
<u>Problem: LOW BATTERY POWER</u>	
Cause	Recommendation
Poor condition of the battery	Replace the battery.
Inadequate power supply or Inappropriate voltage drops	Check the condition of the cigarette lighter. Check the connection of the clips to the battery
<u>Problem: NO OUTPUT</u>	
Cause	Recommendation
The power inverter is not operating	Switch the power inverter off and on again. If necessary repeat the process until the power inverter starts.
Cigarette lighter requires power	Switch the ignition on
Battery voltage below 10 Volt.	Charge or exchange the battery.
Power inverter has cut-off automatically due to overheating	Allow the power inverter to cool down Ensure there is enough air circulation.
Inverter internal fuses have blown	Exchange the fuse. Check that the supply wires are correctly connected before reconnecting the inverter.

Low Battery Voltage

When the supply voltage falls below 10 Volts the alarm sounds. The Red protection LED will then illuminate and the power inverter will switch off automatically. The inverter will operate normally when the correct supply voltage is restored.

Overload protection

If the incoming voltage exceeds 15Volt DC or if the maximum output power is exceeded, the alarm will sound and then the unit will switch off automatically.

Short-circuit

If the wires are crossed or the appliance connected becomes short-circuited, this usually causes the internal fuses to blow. Switch off using the (ON/OFF) switch, disconnect the 12 Volt supply and the appliance from the power inverter and exchange the fuses.

Overheating

If the internal temperature of 65°C is exceeded, the inverter switches off automatically. After cooling down for approx. 15 minutes, the unit can be switched on again.

Disposal

The unit contains hazardous constituents that should be disposed of at local authority registered waste recycling center or a waste electrical equipment collection point. Do not dispose of with general household waste.



11 TECHNICAL SPECIFICATIONS

ITEM NO.	MP56015	MP56030	M56050	MP56080	MP56100	MP56150	
OUTPUT	150W	300W	500W	800W	1000W	1500W	
Output	Duty Cycle	80%	80%	80%	80%	80%	
	Frequency	50HZ \pm 5%					
	AC Regulation	10%					
	Waveform	Modified sine wave					
	AC Voltage	230V					
	USB Output	5V / 1.0A	5V / 2.1A	5V / 2.1A	5V / 2.1A	5V / 2.1A	5V / 2.1A
Input	No Load Current	<0.35A	<0.35A	<0.50A	<0.60A	<0.8A	<1.0A
	DC Voltage	12V					
	Voltage Range	10-15VDC					
	Efficiency (typical)	80%					
	Internal Fuse Rating Fuse Quantity	20A * 1	35A * 1	30A * 2	35A * 3	40A * 3	35A * 6
Protection	BAT. Low - Alarm	10.5V DC \pm 0.5V					
	BAT. Low - Shut Down	9.5VDC \pm 0.5V					
	Overload	>180W	>360W	>600W	>960W	>1200W	>1800W
		Shut off output voltage, re-power on to recover					
	Over Voltage	15-16V					
	Over Temperature	>60°C / 140°F					
	Output Short Circuit	Auto Shut off					
Battery Reverse Polarity	Fuse will break						
DC Supply Cables	Accessories	Cigar lighter plug	Cable with clips	Cable with clips	Cable with ring terminals	Cable with ring terminals	Cable with ring terminals

We declare that this product conforms to the following standards

2014/35/EU (LVD), 2014/30/EU (EMC), 93/68 EEC (CE) Marking, 2011/65/EU (ROHS)

EN60950-1 (General product safety)

EN61000-3-2, EN61000-3-3, EN55014-1, EN55014-2 (EMC)

EN61558-1:2005+A1:2009 EN61558-2-16:2009+A1:2013



Technical Manager Maypole Ltd June 2017

Email: sales@maypoleltd.co.uk

Web: www.maypole.ltd.uk