

**EN**

Original Instructions  
Version 3



# 12V DC 230V 1000W AC **INVERTER**

**23245**



These are the original product instructions. This document is part of the product; retain it for the life of the product, passing it on to subsequent holders. Read this manual in full before attempting to assemble, operate or maintain this product.

This Draper Tools manual describes the purpose of the product and contains all the necessary information to ensure its correct and safe use. Following all the instructions and guidance in this manual will ensure the safety of both the product and the operator and increase the lifespan of the product.

All photographs and drawings within this manual are supplied by Draper Tools to help illustrate correct operation of the product.

Every effort has been made to ensure the information contained in this manual is accurate. However, Draper Tools reserves the right to amend this document without prior warning. Always use the latest version of the product manual.

## 1.1 Product Reference

**User Manual for:** 1000W AC Inverter

**Stock No:** 23245

**Part No:** IN1000

## 1.2 Revisions

**Version 1:** April 2012  
First release.

**Version 2:** April 2016  
Revised.

**Version 3:** April 2024  
Revised.

For the latest version of this manual and the associated parts list, if applicable, please visit **[drapertools.com/manuals](http://drapertools.com/manuals)**.

## 1.3 Understanding the Safety Content of This Manual



**WARNING!** – Situations or actions that may result in personal injury or death.



**CAUTION!** – Situations or actions that may result in damage to the product or surroundings.

**Important:** – Information or instructions of particular importance.

## 1.4 Copyright © Notice

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3.1 Intended Use

This product is designed to convert 12V DC to 230V AC power via connection with the vehicle's battery. Ideal for use in caravans, mobile homes and boats and for powering appliances that use mains voltage.


Any other application beyond the conditions established for use will be considered misuse. Draper Tools accepts no responsibility for improper use of this product.

3.2 Specification

Stock No.	23245
Part No.	IN1000
Input Voltage:	12V DC
Output Voltage:	AC 230V/50Hz
USB Output:	DC 5V/2100mA
Max Continuous Power:	1000W
Peak Watts:	2000W
Output Type:	Modified sine wave

**Important:** Read all the Health and Safety instructions before attempting to operate, maintain or repair this product. Failure to follow these instructions may result in injury or damage to the user, the product or the appliance.

- **ALWAYS** use the inverter in a well-ventilated environment.
- **DO NOT** expose to direct sunlight or heat sources.
- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or lack of experience and knowledge, unless they have been given supervision or instruction concerning the use of the appliance by a person responsible for their safety. Children should be supervised to ensure that they do not play with the appliance.
- **DO NOT** allow the inverter to get wet or use in damp areas where there is condensation.
- **DO NOT** use or connect the inverter near flammable or explosive substances.
- **DO NOT** connect to any AC power source.
- **DO NOT** connect to any power source with a positive earth electrical system.
- The power source must provide DC voltage between 10.6 and 15 Volts DC and must be able to supply sufficient current to operate the load.
- **NEVER** exceed the input voltage of 15V DC.
- **ALWAYS** disconnect the inverter when not in use or when unattended.
- Regularly check the connections for the input and output are secure.
- When connecting always ensure the correct polarity is observed.
- Reverse polarity will cause the inverter internal fuse to blow and possibly result in permanent damage to the unit.
- **DO NOT** use if the inverter is damaged. The inverter must be checked by qualified service personnel only.

 **WARNING!** Inverters can become hot during use.

- **DO NOT** start the engine when the inverter is connected or in operation.
- Before connecting ensure nothing is plugged in and the inverter is switch off.
- **DO NOT** pull the leads or clips from the battery terminals.



### **WARNING! Risk of electric shocks.**

- **DO NOT** Open the casing.
- Only use with the connector and leads supplied.
- **DO NOT** use the inverter for any other purpose than for which it is designed.
- **DO NOT** use with appliances that exceed 1000W.



**WARNING! DO NOT** exceed the stated maximum peak wattage. Using products with a higher wattage output than the inverter's continuous rating will result in battery drainage and damage to the inverter.

- The inverter is **NOT** suitable for operating appliances designed to produce heat, such as hair dryers, irons, toasters, heaters and coffee machines, as these items drain high amounts of current above 500W.



**CAUTION!** Certain types of rechargeable devices are designed to be plugged directly into an AC power source. These types of devices can drain the battery and cause damage to the inverter. If in doubt contact the manufacturer of the appliance before connecting to the inverter. Draper Tools Limited accepts no liability for damage caused in any way by incorrect or inadvertent connection.

- With sensitive equipment, for example laptop computers, it is good practice to use an anti-surge device in conjunction with the inverter.

### **4.1 12V DC Vehicle Battery Safety**



**DANGER! - Beware, lead-acid batteries generate explosive gases during normal battery operation.**

- **DO NOT** smoke or allow a spark or flame in the vicinity of the battery or engine.
- If the battery terminals are corroded or dirty, clean them before attaching the leads.



**WARNING!** To prevent the risk of sparking, short circuit and possible explosion:

- **DO NOT** drop metal tools in the battery area or allow them to touch the battery terminals.
- Before attaching the leads to the battery, remove personal metallic items such as rings, bracelets, necklaces and watches. A lead acid battery can produce a short-circuit current which is high enough to weld such items to the vehicle and cause severe burns.

4.2 Explanation of Symbols



Read the instruction manual



Keep out of the reach of children



**DO NOT** use in wet or damp conditions



Mandatory action required



**Warning** Electrical hazard – risk of electrocution!



WEEE –  
Waste Electrical & Electronic Equipment  
Do not dispose of Waste Electrical & Electronic Equipment  
in with domestic rubbish



UK Conformity Assessed



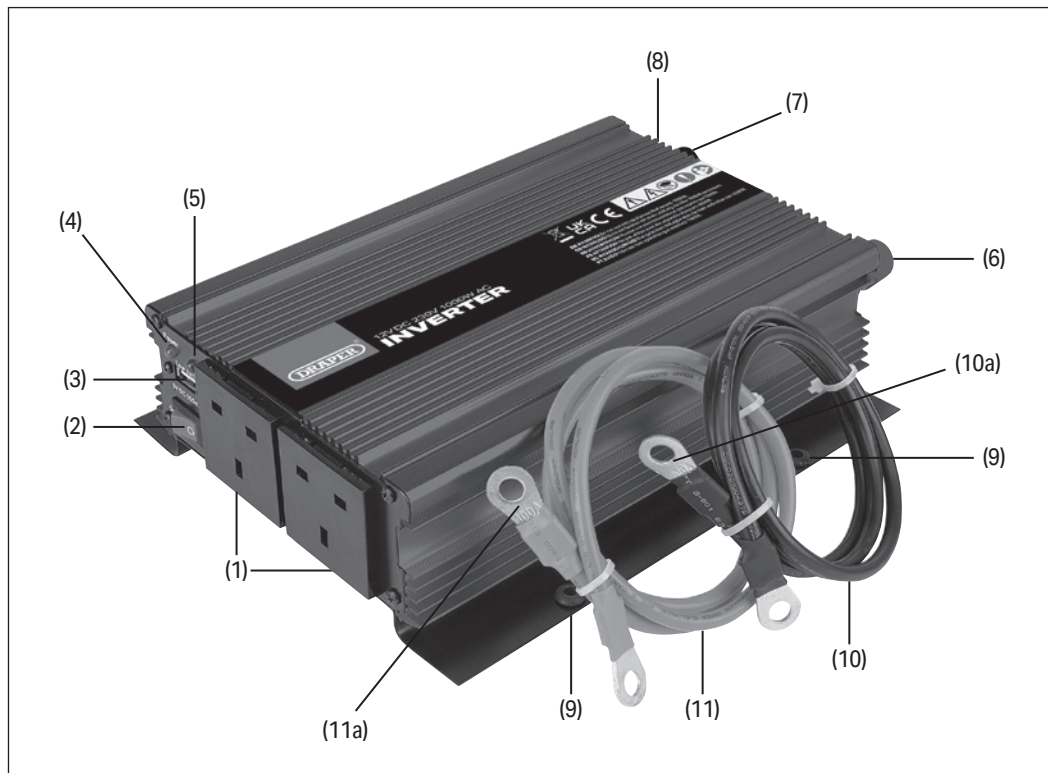
European conformity

## 5. Identification and Unpacking

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Carefully remove the product from the packaging and examine it for any signs of damage that may have occurred during shipment. If any part is damaged or

missing, do not attempt to use the product. Please contact the **Draper Helpline**; contact details can be found at the back of this manual.



- |                                     |  |
|-------------------------------------|--|
| (1) 2 X AC power outlet             | (9) 4 X Anchor points (on both sides)                    |
| (2) ON/OFF switch                   | (10) Battery black negative (-) terminal connection lead |
| (3) USB DC output                   | (10a) fork spade wire connector (negative)               |
| (4) Power indicator                 | (11) Battery red positive (+) terminal connection lead   |
| (5) Low battery indicator           | (11a) fork spade wire connector (positive)               |
| (6) Red positive (+) terminal cap   |  |
| (7) Black negative (-) terminal cap |  |
| (8) Earth point connection          |  |

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## 6. Preparing the Inverter

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- Before connecting ensure nothing is plugged in and the inverter is switch off.

### 6.1 Power Inlet connections - Fig. 1.

1. Attach the required DC connector to the inverter. First remove the black (negative) terminal cap (7) and fit the black (negative) fork spade wire connector (10a) to the terminal, refit the cap and tighten securely. Ensure it is positioned away from the positive terminal.
2. Then remove the red (positive) terminal cap (6) and fit the red (positive) fork spade wire connector (11a) to the terminal, refit the cap and tighten securely.

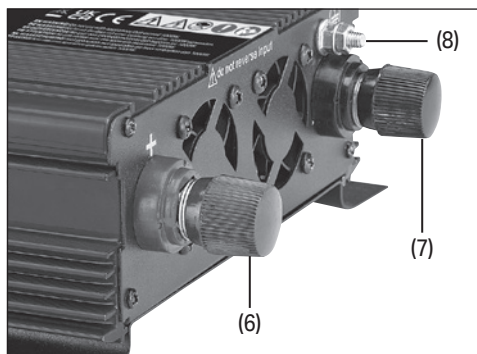


Fig. 1

## 7. Inverter Operation

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**Important:** Before operating this product, read and understand all the safety instructions listed in this manual. Ensure that the product is fully assembled and correctly prepared for use.

### 7.1 Grounding connection



**WARNING!** before using the inverter it is recommended that ground connection is provided to the earth point (8) - Fig.1. The use of the earth point will depend on your particular installation. In any installation, heavy duty, green+yellow-insulated wire should be used for this connection.

- In a stationary land based installation, the earth point should be connected to a metal earthing stake driven into the ground to a depth of 1.2M or more, If the battery system powering the inverter does not have a connection to ground, one of the battery terminals (commonly the negative terminal) should also be connected to the earthing stake.
- In a vehicle where the inverter is wired directly to the battery, the earth point is simply connected to the vehicle chassis.

### 7.2 Connecting to the 12V Battery Supply

- Ensure the engine is off before attaching the red (positive) connector (11) to the battery positive (+) terminal and the black connector (10) to the battery negative (-) terminal.

### 7.3 AC Output - Fig. 2.

1. Check the rating label on the appliance or equipment for the power consumption in watts. Calculate the

power consumption of the devices to be plugged in, ensuring the rating is under the maximum capacity of the inverter.

- **NOTE:** If the rating stated is in amps – multiply the value by the voltage (230V) to determine the wattage.
- 2. Place the inverter on a flat level surface in a well-ventilated area.
- 3. Then plug the device into the AC outlet (1) and switch the inverter on (2).
- **DO NOT** start the engine while the inverter is connected or in operation.

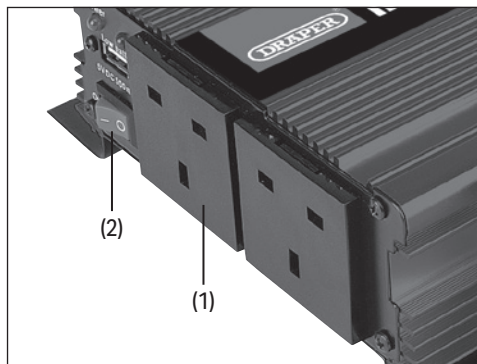


Fig. 2



## 7.4 USB Output

1. Insert the USB cable into the USB socket (3) and switch on (2).
- The current drawn will vary depending on the load placed on the battery.
  - Start and run the vehicle regularly to avoid starting problems due to a flat battery. **DO NOT** start the engine while the inverter is connected or operating.

## 7.5 Inverter Protection Features

- **Low Battery Voltage** – If the battery voltage drops significantly (10V) an audible alarm will sound. When the battery voltage reaches a low level the battery indicator light (5) will turn red and the inverter will automatically shut off. Switch off and unplug any devices from the inverter. The battery will need recharging before the inverter can be reused.
- **Short Circuit** – When the internal temperature of the inverter reaches reverse polarity or short circuit condition of the load will usually result in opening of the short circuit protecting.
- **High Temperature sensor** – When the internal temperature of the inverter reaches 65°C, it will automatically shut down. Once cooled down, restart.

8.1 General Maintenance

- **Important:** Any maintenance, servicing or repairs should be carried out by authorised and suitably qualified personnel.
- Always disconnect the inverter from the power supply before carrying out any maintenance.
- When not in use store the inverter in a safe, dry, childproof location.

8.2 Troubleshooting

Problem	Possible cause	Remedy
Inverter will not operate	Inverter not adequately warmed up.	Turn Inverter power switch off and on until it powers your appliance.
	Battery voltage is below 10V.	Charge or replace battery.
	Equipment being operated draws too much power.	Reduce load to below maximum wattage (1000W).
	Inverter in thermal shut down condition.	Allow the inverter to cool down. Check that there is adequate ventilation and air inlets are clear. Ensure load is less than max. continuous power (1000W).
	Battery in poor condition.	Check and replace battery.
Low Voltage Alarm On Continuously	Insufficient power or large voltage drop.	Check condition of battery connectors. Clean or replace as necessary.
Low Output Voltage	Inverter is overloaded.	Reduce load to continuous watts to maintain regulation.
	Input voltage below 11V.	Keep input voltage above 11V to maintain regulation.
Television Interference	'Snow-like' picture / signal is breaking up.	Locate the power inverter as far as possible from the television, antenna, and the antenna cables. Adjust the orientation of the power inverter antenna cables, and the TV power cord to reduce interference. Ensure the antenna provides an adequate ("snow free") signal and that high quality, shielded antenna cable is used.
Buzz or Hum in Audio System if used	The power supply in the device does not adequately filter the modified sine wave produced by the power inverter.	Use a sound system that uses a higher quality power supply.

## 9. Disposal

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At the end of its working life, dispose of the product responsibly and in line with local regulations. Recycle where possible.

- **DO NOT** dispose of this product with domestic waste; most local authorities provide appropriate recycling facilities.



## 10. Warranty

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Draper Tools products are guaranteed for 12 months to be free from defective materials and workmanship. Full details of the warranty period can be found on the Draper Tools Website.

Should the tool develop a fault within the warranty period, return the complete tool to the place of purchase or contact Draper Tools directly. Proof of purchase must be provided.

This warranty does not apply to any consumable parts or normal wear and tear.

It also does not cover any damage caused by misuse, careless or unsafe handling, modifications, or repairs carried out by any personnel other than an authorised Draper Tools repair agent.

Please note that this guarantee is in addition to and does not affect your statutory rights.

### **Draper Tools Limited**

## Contact Details

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