

Qoltec[®]

Model: 51940-51945

INSTRUCTION MANUAL

MONOLITH VOLTAGE CONVERTER

PURE SINE WAVE WITH BATTERY CHARGING

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INTRODUCTION

Thank you for your trust and for choosing our inverter. We are confident that the product will meet your expectations. This manual contains instructions for the installation and use of the product, including important safety instructions for correct operation and installation. If you have any questions after reading this manual, please contact our Customer Service Department.

INFORMATION ABOUT THIS MANUAL

This manual describes, installation, operation and troubleshooting of this appliance. Please read all the information in it carefully before installing and operating the unit.

SAFETY INSTRUCTIONS

Warning! Please read the safety instructions when assembling and using the inverter.

1. To reduce the risk of danger, do not expose the inverter to adverse conditions during installation, such as rain, snow, frost, fog, greasy dirt and heavy dust. Do not install the inverter in a closed room and do not cover or block the ventilation openings.
2. The inverter should not be installed in areas exposed to fire, electric shock, the presence of cables that do not comply with standard specifications.
3. As the unit contains components susceptible to arc discharge, it must not be installed in flammable or explosive environments.
4. If the electrolyte comes into contact with your skin or clothing when connecting the battery, wash immediately with clean soapy water. If the acidic substance gets into your eyes, flush them with clean water for at least 20 minutes and go to hospital for consultation as soon as possible.
5. Do not place metal tools on the battery as this may damage the battery or inverter components due to sparking caused by a short circuit.
6. It is forbidden to insert small metal objects such as iron needles and iron pins into the product. Keep the device away from water.
7. Children are prohibited from using this product and it is not permissible to touch the terminals, output socket fan, etc. with their fingers to avoid injury and electric shock.

PRODUCT FEATURES AND FUNCTIONS

1. Pure sine wave
2. Combination of functions :
 - 12V to 230V converter, when the battery is connected the converter draws the necessary energy to power the connected device,
 - Battery chargers, when connected to the mains, the device automatically enters battery charging mode,
 - With the UPS, when a mains power failure is detected, the unit enters emergency power mode, using the energy stored in the battery until the mains voltage is restored.
 - The inverter can simultaneously charge the battery and power connected appliances.
3. High efficiency, low weight
4. LED indicates load status
5. Fully automatic cooling fan control (load)
6. Microprocessor-based design
7. Soft start, effectively maintaining battery life
8. Low voltage / overload / short circuit / over voltage / over temperature alarm system
9. The casing is designed from high-quality, shock- and impact-resistant aluminium.
10. The product is equipped with a range of security features that guarantee full protection for connected devices.

OPERATING PRINCIPLE OF THE LOADER

1. Charging of the battery takes place in 3 automatic stages (*Illustration 3 in the Annex*)
2. This series of products uses the most advanced three-stage mode for battery charging, constant current, constant voltage and variable charging.
 - In the constant current charging stage, the charging current remains constant, the charging capacity increases rapidly, the battery voltage increases
 - In the constant voltage charging stage, the charging voltage remains constant, the charging capacity increases, the battery voltage increases slowly and the charging current decreases

-The battery is fully charged, the charging current falls below the variable charging current, the charging voltage reduces to the variable charging voltage;

-In the variable charging stage, the charging voltage will decrease and stay at the variable charging voltage, which can prevent battery damage due to overcharging. 12V charger:14.6V charging voltage, 13.8V variable charging voltage.

CONNECTION OF DEVICE AND WIRES

1. Connect the inverter to the battery: (*Annex Illustration 1*)
 - a) Connect the positive ("+") lead of the inverter to the positive terminal of the battery.
 - b) Connect the negative ("-") lead of the inverter to the negative battery terminal.
2. Connection of external devices : (*Annex Illustration 2*)
 - a) Ensure that the output voltage of the inverter is compatible with the requirements of the external equipment.
 - b) Ensure that the inverter has the correct current rating to power all appliances simultaneously.
 - c) Connect the device cables to the appropriate inverter outputs.
 - d) Re-check the polarity to avoid damage to the equipment.
3. Installation and installation security:
 - a) Ensure that the inverter is mounted in a dry, ventilated location to avoid overheating.
 - b) Ensure that all connections are stable and well secured to avoid short circuits.
 - c) Once all devices are connected, switch on the inverter and check that everything is working correctly.
 - d) Monitor the operation of the inverter and equipment for a while to ensure that nothing is overheating and working as expected.

CAUTION ! Remember safety and always disconnect the inverter from the battery before making any changes to the wiring.

USE OF THE PRODUCT

Application

1. Power tools: electric saw, drill, grinder, sandblaster, punching machine, weeding machine, air compressor, etc.
2. Office equipment: computers, printers, monitors, copiers, scanners, etc.
3. Household appliances: hoovers, electric fans, fluorescent lamps, light bulbs, electric cutting knives, sewing machines, etc.
4. Kitchen appliances: microwave ovens, refrigerators, freezers, coffee machines, blenders, ice machines, ovens, etc.
5. Industrial equipment: metal halide lamps, high-pressure lamps, ship cutting, solar energy, wind power generation, etc.
6. Electronic equipment: Televisions, games consoles, radios, power amplifiers, music equipment, monitoring equipment, server, satellite communication equipment, etc.

INSTRUCTIONS FOR USE

Warning! High voltage is present inside the product. Persons without specialist knowledge are strictly prohibited from dismantling or modifying it without authorisation, and the company is not liable for any infringements. Follow the instructions below.

1. Battery selection: Use lead-acid batteries with an input voltage of 12V/24V. For a 12V/300W inverter, select a battery capacity above 30Ah. For a 12V/1000W inverter, select a capacity above 100Ah, etc.
2. Connect switched-off devices to the inverter: make sure that the charging power is within the inverter's power range, the power of the connected device must not exceed the maximum power of the inverter after start-up.
3. Low voltage protection: When the battery voltage is too low, the indicator will sound an alarm, indicating that the DC supply voltage has been reduced and the battery needs to be recharged. For example: when the input voltage of the 12V inverter is lower than $10V+0.5V$, or when the input voltage of the 24V inverter is lower than $20V+0.5V$. The AC output will first alarm and then switch off and the indicator will light red.
4. Over-voltage protection : when the battery voltage is too high, an alarm will sound, indicating that the DC input voltage is too high and the

battery should be discharged as soon as possible. For a 12 V inverter, when the input voltage reaches $15\text{ V} \pm 0.5\text{ V}$; for a 24 V inverter, when the input voltage reaches $30\text{ V} + 0.5\text{ V}$, the lamp will light red and the AC output device will be switched off at the same time.

TECHNICAL SPECIFICATIONS

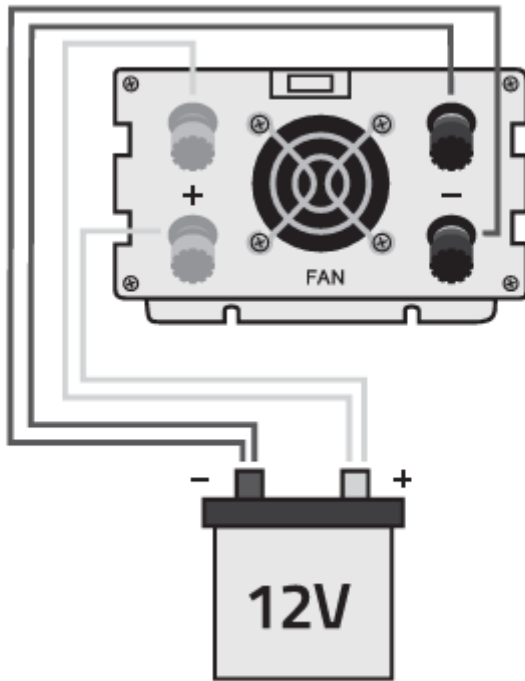
Model	51940	51941	51942	51943	51944	51945
Rated power	300W	600W	1000W	2000W	2500W	3000W
Peak power	600W	1200W	2000W	4000W	5000W	6000W
Output factor	AC 230V \pm 10%					
DC input	12V					
Output	230V					
Security	UVP, SCP, OVP, OCP, OTP					
Cooling	Fan					
Efficiency	89%					

PROBLEM SOLVING

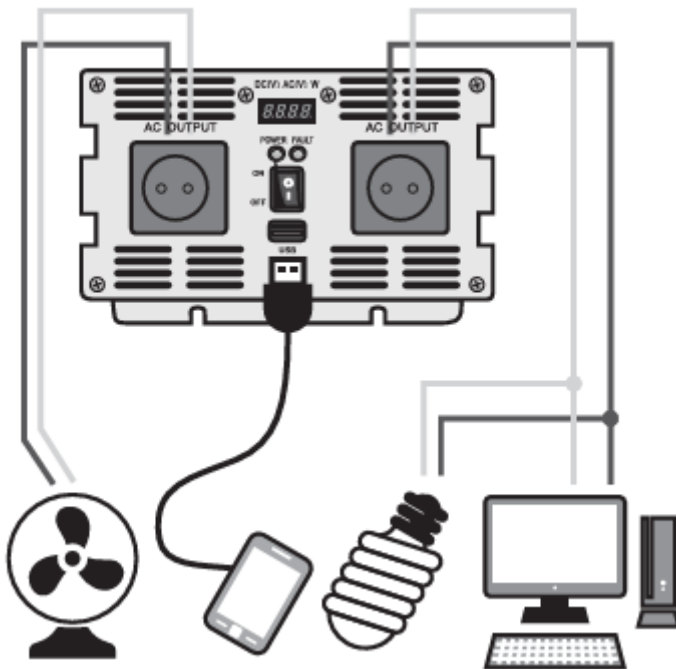
PROBLEM	POSSIBLE CAUSE	SOLUTION
Inverter does not work when power is first applied	Battery not connected correctly. The connection on the battery side is loose. Battery voltage is too low.	Check the battery and cable connections. Check the DC fuse. Charge the battery.
Sound signal and red light flashes continuously for 1 second.	The voltage at the DC input terminal reaches the low battery alarm setting: $10.5 \pm 0.5\text{VDC}$ (12V) $21 \pm 0.5\text{ V DC}$ (24 V)	1 Check that the battery charge level is sufficient, if it is lower than the previous sheet. Recharge the battery as soon as possible. 2 Check that the battery cable is thick enough to conduct the required length of current. If necessary, thicker wires can be used.

		3. tighten the battery input circuit connection.
The alarm will sound and the red light will flash continuously for 2 times at 1S.	The voltage at the DC input terminal reaches the overvoltage protection setpoint: 15.5±0.5VDC (12V) 31±0.5 V DC (24 V)	1.Check that the voltage at the DC input terminal is greater than 15V/30V/60V DC.
The audible alarm sounds and the red LED flashes 3 times every 1s	Device overheats	1.1 Check that the fan is operating normally. If this is not the case, the fan or the fan control circuit may be faulty, contact technical support. 2.2 If the fan is operating, check that the ventilation slots and vents on the inlet side are correctly positioned. The air outlet of the fan must not be blocked. 3.3 If the fan is operating normally and the window is not blocked, check that there is sufficient cold spare air. Also check that the ambient temperature is below 45°C. 4.4 Reduce the load to reduce the heating effect. Once the cause of overheating and cooling has been eliminated, the unit will automatically reset itself.
The audible alarm sounds and the red LED flashes	The inverter is overloaded.	1. Disconnect the load. 2. Reduce the load. 3. check for a short circuit at the output.
The inverter operates normally but there is no voltage at the AC output.	Transmission error. Incorrect connection by the user, etc.	Check that the device is connected correctly. 2. check for abnormal noises inside the product 3. Contact technical support.

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