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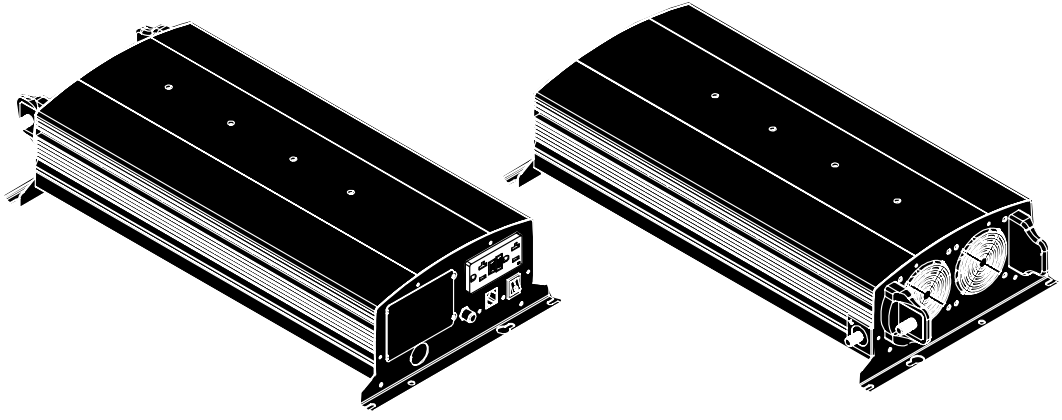

Owner's Guide

XPower™ Inverter 3000

813-3000-UL

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Document Part Number

975-0555-01-01

Date and Revision

April 2018 Rev C

Product Part Number

813-3000-UL

Contact Information

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Information About Your System

As soon as you open your product, record the following information and be sure to keep your proof of purchase.

Serial Number _____

Product Number _____

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About This Guide

Purpose

The purpose of this Owner's Guide is to provide explanations and procedures for operating, maintaining, and troubleshooting the XPower Inverter 3000.

Scope

The Guide provides safety guidelines, as well as information about operating and troubleshooting the inverter. It does not provide details about particular brands of batteries. You need to consult individual battery manufacturers for this information.

This Guide does not provide installation instructions. Installation should be handled by qualified installers including licensed technicians and electricians. Qualified installers have knowledge and experience in installing electrical equipment, knowledge of the applicable installation codes, and awareness of the hazards involved in performing electrical work and how to reduce those hazards.

Qualified installers are to use the XPower Inverter 3000 Installation Guide (doc. part number: 975-0556-01-01).

Audience

The Guide is intended for users and operators as well as installers of the XPower Inverter 3000.

Related Information

You can find more information about Xantrex-branded products and services at **www.xantrex.com**.

Important Safety Instructions

IMPORTANT: READ AND SAVE THIS OWNER'S GUIDE FOR FUTURE REFERENCE.

This guide contains important safety instructions for the XPower Inverter 3000 that must be followed during operation and troubleshooting.

Read these instructions carefully and look at the equipment to become familiar with the device before trying to operate, service or maintain it. The following special messages may appear throughout this bulletin or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.

The addition of either symbol to a "Danger" or "Warning" safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠⚠DANGER

DANGER indicates an imminently hazardous situation, which, if not avoided, will result in death or serious injury.

⚠WARNING

WARNING indicates a potentially hazardous situation, which, if not avoided, can result in death or serious injury.

⚠CAUTION

CAUTION indicates a potentially hazardous situation, which, if not avoided, can result in moderate or minor injury.

NOTICE

NOTICE indicates a potentially hazardous situation, which, if not avoided, can result in equipment damage.

Important: These notes describe things which are important for you to know, however, they are not as serious as a caution or warning.

Safety Information

This chapter contains important safety instructions for operating the XPower Inverter 3000. Each time, before using the XPower Inverter 3000, READ ALL instructions and cautionary markings on or provided with the inverter and all appropriate sections of this guide.

NOTE: The XPower Inverter 3000 contains no user-serviceable parts.

⚠⚠DANGER

HAZARD OF FIRE, ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Do not expose the inverter to rain, snow, spray, or bilge water. This inverter is designed for indoor use only.
- Do not operate the inverter if it has received a sharp blow, been dropped, has cracks or openings in the enclosure including if the fuse cover has been lost, damaged, or will not close, or otherwise damaged in any other way.
- Do not disassemble, open, or repair the inverter. Refer all servicing to qualified service personnel.
- Disconnect both AC and DC power from the inverter before attempting any maintenance or cleaning or working on any circuits connected to the inverter. Internal capacitors remain charged after all power is disconnected.
- Do not operate the inverter with damaged or substandard wiring. Make sure that all wiring is in good condition and is not undersized.

Failure to follow these instructions will result in death or serious injury.

NOTE: Turning the inverter to Standby mode using the ON/STANDBY switch on the front panel will not reduce an electrical shock hazard.

⚠⚠DANGER

FIRE AND BURN HAZARD

- Do not cover or obstruct the air intake vent openings.
- Do not use transformerless battery chargers in conjunction with the inverter due to overheating.

Failure to follow these instructions will result in death or serious injury.

⚠⚠DANGER

EXPLOSION HAZARD

- The XPower Inverter 3000 is designed for deep cycle lead-acid batteries. See warning below when connecting to lithium ion batteries.
- Do not work in the vicinity of lead-acid batteries. Batteries generate explosive gases during normal operation. See note #1.
- Do not operate in compartments containing flammable materials or in locations that require ignition-protected equipment. See notes #2 and #3.

Failure to follow these instructions will result in death or serious injury.

⚠WARNING

LITHIUM ION BATTERY TYPE HAZARD

Make sure to use a lithium ion battery pack that includes a certified Battery Management System (BMS) with built-in safety protocols. Follow the instructions published by the battery manufacturer.

Failure to follow these instructions can result in death or serious injury.

NOTES:

1. Follow these instructions and those published by the battery manufacturer and the manufacturer of any equipment you intend to use in the vicinity of the battery. Review cautionary markings on these products and on the engine.
2. This inverter contains components which tend to produce arcs or sparks.
3. Locations include any space containing gasoline-powered machinery, fuel tanks, as well as joints, fittings, or other connections between components of the fuel system.

Precautions When Working With Batteries

⚠WARNING

BURN FROM HIGH SHORT-CIRCUIT CURRENT, FIRE AND EXPLOSION FROM VENTED GASES HAZARDS

- Always wear proper, non-absorbent gloves, complete eye protection, and clothing protection. Avoid touching your eyes and wiping your forehead while working near batteries. See note #4.
- Remove all personal metal items, like rings, bracelets, and watches when working with batteries. See notes #5 and #6 below.
- Never smoke or allow a spark or flame near the engine or batteries.

Failure to follow these instructions can result in death or serious injury.

NOTES:

1. Locate the XPower Inverter 3000 unit away from batteries in a well ventilated compartment.
2. Always have someone within range of your voice or close enough to come to your aid when you work near a lead-acid battery.
3. Always have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.
4. If battery acid contacts skin or clothing, wash immediately with soap and water. If acid enters your eye, immediately flood it with running cold water for at least twenty minutes and get medical attention immediately.
5. Use extra caution to reduce the risk or dropping a metal tool on the battery. It could spark or short circuit the battery or other electrical parts and could cause an explosion.

6. Batteries can produce a short circuit current high enough to weld a ring or metal bracelet or the like to the battery terminal, causing a severe burn.
7. When removing a battery, always remove the negative terminal from the battery first for systems with grounded negative. If it is grounded positive, remove the positive terminal first. Make sure all loads connected to the battery and all accessories are off so you don't cause an arc.

Precautions When Placing the Inverter

NOTICE

RISK OF DAMAGE TO THE INVERTER

- Never allow battery acid to drip on the inverter when reading gravity, or filling battery.
- Never place the XPower Inverter 3000 unit directly above batteries; gases from a battery will corrode and damage the inverter.
- Do not place a battery on top of the inverter.

Failure to follow these instructions can result in equipment damage.

Regulatory

The XPower Inverter 3000 is certified to UL458 and CSA 107.1 standard. For more information see "Regulatory Approvals" on page 18.

The XPower Inverter 3000 is intended to be used for mobile or commercial applications. It is not intended for use in marine and other applications as it may not comply with the additional safety code requirements needed for those applications. See "Limitations On Use" below.

The XPower Inverter 3000 includes a "Floating Neutral" AC output design. It may be permanently damaged if the AC output Neutral is bonded to Ground which is common in distribution panels. Such damage voids the warranty.

The XPower Inverter 3000 provides a non-sinusoidal (that is, modified sine wave) AC output. For more information, see "Inverter Loads" on page 7.

⚠WARNING

LIMITATION ON USE

- Do not use in connection with life support systems or other medical equipment or devices.
- Do not use in ambulances or other life-saving emergency vehicles.

Failure to follow these instructions can result in death or serious injury.

Contents

Introduction

The XPower Inverter 3000 has been designed to give you quality power, ease of use, and reliability.

Please take a few moments to read this chapter to familiarize yourself with the main performance features and protection features.

Quality Power

The XPower Inverter 3000 is a quality inverter designed for recreational vehicle (RV) and truck applications.

- The inverter provides up to 2500 watts of continuous power. It is designed to handle loads such as microwaves, refrigerators, freezers, circular saws, and small air compressors.
- The inverter's high surge capability lets you handle many hard-to-start loads, including large TVs, refrigerators, and freezers.
- The cooling fan in the inverter is thermally activated and comes on when the inverter becomes warm. The fan turns off automatically after the inverter has cooled.

Ease of Use

Superior features and rugged durability have been combined with ease of use:

- The unit is compact, light weight, and easy to install (see XPower Inverter 3000 Installation Guide (doc. part number: 975-0556-01-01).
- Loads can be powered directly from the GFCI-protected AC outlets.
- Easy-to-read indicators on the front panel let you monitor system performance at a glance.
- One ON/STANDBY remote switch with communications cable lets you control the inverter from a convenient location while the inverter itself is mounted out of sight.

Comprehensive Protection

The XPower Inverter 3000 is equipped with numerous protection features to guarantee safe and trouble-free operation:

Low battery alarm Alerts you if the battery has become discharged to 11.0 V or lower.

Low battery voltage shutdown Shuts the inverter down automatically if the battery voltage drops below 10.5 volts. This feature protects the battery from being completely discharged.

High battery voltage shutdown Shuts the inverter down automatically if the input voltage rises to 15 volts or more.

Overload and short-circuit shutdown Shuts the inverter down automatically if a short circuit is detected in the circuitry connected to the inverter's output, or if the loads connected to the inverter exceed the inverter's operating limits.

Over temperature shutdown Shuts the inverter down automatically if its internal temperature rises above an unacceptable level.

Inverter Materials List

The inverter ships with the following items:

- one XPower Inverter 3000 unit,
- owner's guide,
- one ON/STANDBY remote switch with communications cable,
- two sets of locks and washers for DC cables,
- one set of rubber boots for DC terminals (not shown), and
- strain-relief clamps for AC input cables (not shown).

NOTE: If any of the items are missing, contact Xantrex or any authorized Xantrex dealer for replacement. See "Contact Information" on page i.

IMPORTANT: Keep the carton and packing material in case you need to return the inverter for servicing.

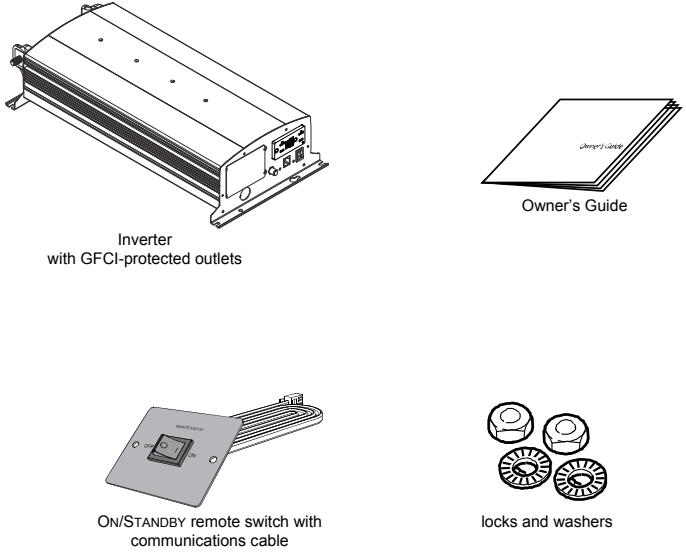

Figure 1 Materials List

Inverter Features

This section describes the different parts of the inverter.

AC Panel

Item	Description
1	**AC compartment with cover (1a)** houses the AC terminal block for hardwiring the inverter
2	**GFCI-protected dual AC outlet**
3	**AC knockout** Take the cover out when passing cables (wires) through for hard wiring the inverter.
4	**Reset button** is used to reset the 20 A supplementary (over-current) protectors.
5	**Power light** (green) indicates the inverter is operating.
6	**Remote ON/STANDBY connector port** for connecting the remote ON/STANDBY switch.
7	**Fault light** (red) indicates that the inverter has shut down due to inverter overload or over-temperature.
8	**ON/STANDBY Switch** Turns the inverter's control circuit on and on Standby mode. This switch is not a power disconnect switch. Disconnect AC and DC power before working on any circuits connected to the inverter.
9	**Remote ON/STANDBY Switch** comes with 20 feet (6m) long cable.

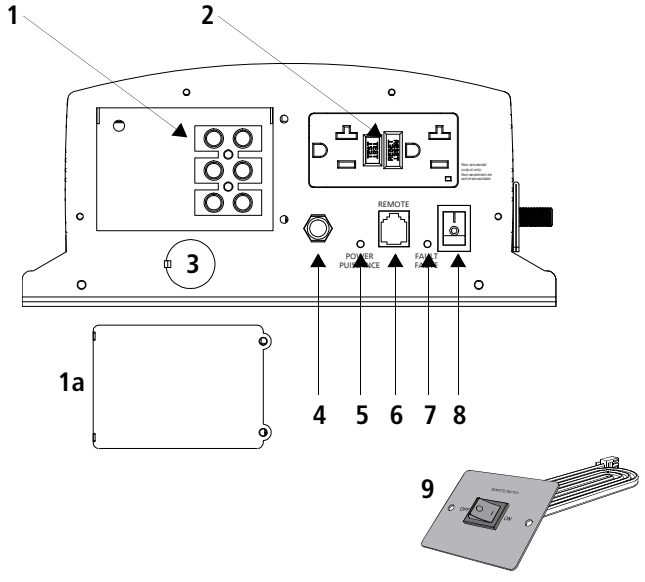

Figure 2 AC Panel

DC Panel

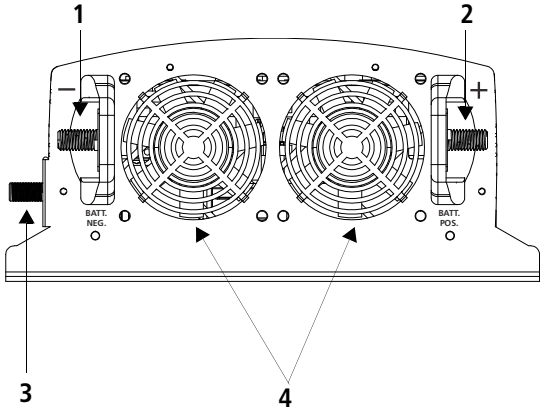

Figure 3 DC Panel

Item	Description
1	**Negative DC Input Terminal** always connects to the negative terminal of the battery via a negative DC input cable (black battery cable). The negative DC input terminal is colored black.
2	**Positive DC Input Terminal** always connects to the positive terminal of the battery via a positive DC input cable (red battery cable). The positive DC input terminal is colored red.
3	**Chassis Ground Screw** connects to vehicle chassis, DC grounding bus or to engine's negative bus.
4	**Ventilation Openings** must not be obstructed for the proper operation of the inverter. When the inverter is mounted, the ventilation opening on the DC panel must not point up or down.

Inverter Operation

This section explains how to operate the inverter efficiently and effectively:

- Gives procedures for operating the inverter from the front panel
- Discusses operating limits and inverter loads
- Discusses battery charging frequency
- Provides information about routine maintenance

⚠WARNING

ELECTRICAL SHOCK HAZARD

The inverter's ON/STANDBY switch does not disconnect DC battery power from the inverter. You must disconnect AC and DC power before working on any circuits connected to the inverter.

Failure to follow these instructions can result in death or serious injury.

Turning the Inverter ON and STANDBY MODE

The ON/STANDBY switch on the inverter's front panel is the main switch that turns the control circuit in the inverter on and in Standby mode.

To turn the inverter on and in Standby mode from its front panel:

- Move the ON/STANDBY switch to the On position to turn the inverter on.
- Move the ON/STANDBY switch to the Standby position to turn the inverter to Standby mode.
  When in Standby mode, the inverter draws a very low current from the battery. See important note below.

To turn the inverter on and in Standby mode from the remote switch:

- Make sure the main ON/STANDBY switch on the front panel is turned on.
- Move the remote ON/STANDBY switch to the On position to turn the inverter on.
- Move the remote ON/STANDBY switch to the Standby position to turn the inverter to Standby mode.
  When in Standby mode, the inverter draws a very low current from the battery.

IMPORTANT: The inverter draws less than 300 mA from the battery with the main ON/STANDBY switch turned on and no load connected. If the main switch is left on, even with no loads the inverter will eventually discharge the battery.

To prevent unnecessary battery discharge, turn the inverter to Standby mode when you are not using it

Testing the GFCI

Perform the following GFCI Test:

1. Turn the inverter on.
2. Plug a simple appliance, such as a lamp, in the GFCI outlet. Turn the lamp on.
3. Press the TEST button. Observe a clicking sound. The lamp turns off.
4. Press the RESET button all the way to the bottom until the button locks into position. The lamp turns back on.

IMPORTANT: Perform this GFCI test once a month to ensure continued functionality of the GFCI.

Operating Several Loads at Once

If you are going to operate several loads from the inverter, turn the loads on one at a time after you have turned the inverter on.

Turning loads on separately helps to ensure that the inverter does not have to deliver the starting current for all the loads at once, and will help prevent an overload shutdown.

Operating Limits

Power Output The XPower Inverter 3000 can deliver up to 2500 watts continuous. The wattage rating applies to resistive loads such as incandescent lights.

Input Voltage The allowable XPower Inverter 3000 input voltage ranges are shown in the following table:

Operating Condition	Voltage Range	Comment
Normal	10–15 volts	n/a
Optimum Performance	12–13 volts	n/a
Low voltage alarm	11 volts or less	The audible low battery alarm sounds.
Low voltage shutdown	less than 10.5 volts	The inverter shuts down to protect the battery from being over-discharged.
High voltage shutdown	15 volts or more	The inverter shuts down to protect itself from excessive input voltage. **NOTE:** Although the inverter incorporates over-voltage protection, it can still be damaged if input voltage exceeds 16 volts.

Inverter Loads

The XPower Inverter 3000 will operate most AC loads within its power rating of 2500 watts. However, some appliances and equipment may be difficult to operate, and other appliances may actually be damaged if you try to operate them with the inverter. Please read “High Surge Loads” and “Trouble Loads” carefully.

High Surge Loads

Some induction motors used in freezers, pumps, and other motor-operated equipment require high surge currents to start. The inverter may not be able to start some of these motors even though their rated current draw is within the inverter’s limits. The inverter will normally start single-phase induction motors rated at 3/4 horsepower or less.

Trouble Loads

NOTICE

EQUIPMENT DAMAGE

Some appliances, including the types listed below, may be damaged if they are connected to the inverter because of the inverter’s modified sine wave output:

- Electronics that modulate RF (radio frequency) signals on the AC line will not work and may be damaged.
- Speed controllers found in some fans, power tools, kitchen appliances, and other loads may be damaged.
- Some chargers for small rechargeable batteries can be damaged. See “Precautions For Using Rechargeable Appliances” on page viii for details.
- Metal halide arc (HMI) lights can be damaged.
- If you are unsure about powering any device with the inverter, contact the manufacturer of the device.

Failure to follow these instructions can damage the unit and/or damage other equipment.

Connecting Appliances to the Inverter

Since regular amounts of AC current flows between the inverter and your appliances, commonly available extension cords can be used to connect the inverter to your appliances. If your appliance will be connected at a considerable distance from the inverter, it is much more practical and less expensive to lengthen the AC wiring than it is to lengthen the DC wiring.

Routine Maintenance

Maintaining the Inverter

Minimal maintenance is required to keep your inverter operating properly. Periodically you should:

- clean the exterior of the unit with a damp cloth to prevent the accumulation of dust and dirt,
- ensure that the DC cables are secure and fasteners are tight, and
- make sure the ventilation openings on the DC panel and bottom of the inverter are not clogged.

Testing the GFCI

Perform a monthly test of the GFCI. See “Testing the GFCI” on page 6 for instructions.

Troubleshooting

This section describes the most common problems you may encounter with the operation of the inverter along with resolutions.

If you encounter problems other than what is described in this section, contact customer support at the number listed on "Contact Information" on page i.

Common Problems

Buzz in Audio Equipment

Some inexpensive stereo systems may emit a buzzing noise from their loudspeakers when operated from the inverter. This occurs because the power supply in the audio system does not adequately filter the modified sine wave produced by the inverter. The only solution is to use a sound system that has a higher quality power supply.

Television Reception

When the inverter is operating, it can interfere with television reception on some channels. If interference occurs, try the following:

1. Make sure that the chassis ground screw on the rear of the inverter is solidly connected to the ground system of your vehicle or home.
2. Make sure that the television antenna provides an adequate ("snow-free") signal, and that you are using good quality cable between the antenna and the television.
3. Keep the cables between the battery and the inverter as short as possible, and twist them together with two to three twists per foot. (This minimizes radiated interference from the cables.)
4. Move the television as far away from the inverter as possible.
5. Do not operate high power loads with the inverter while the television is on.

Troubleshooting Reference

⚠WARNING

ELECTRICAL SHOCK HAZARD

Do not disassemble, open, or repair the XPower Inverter 3000. It does not contain any user-serviceable parts. Refer all servicing to qualified service personnel.

Failure to follow these instructions can result in death or serious injury.

NOTE: See Table 1, "Troubleshooting Reference" on page 10.

Table 1 Troubleshooting Reference

#	LED	Problem	Possible Cause	Solution
1	Fault LED: Off Buzzer: Beeping every 2 seconds.	Inverter's Input Under Voltage Warning Alarm is on.	Poor battery condition Poor DC wiring	Charge the battery. Install a new battery. Use proper cable size and lengths and make solid connections. For more information, refer to “Selecting Cable Sizes” of the Installation Guide.
2	Fault LED: Off Buzzer: Beeping every 2 seconds.	Internal over temperature warning alarm is on.	Ambient temperature is too high. Inverter ventilation openings are obstructed.	Reduce the ambient temperature. Improve ventilation. Make sure the inverter’s ventilation openings are not obstructed.
3	Fault LED: On Buzzer: Beeping every second.	Inverter is in undervoltage shutdown.	Poor battery condition Poor DC wiring	Charge the battery. Install a new battery. Use proper cable size and lengths and make solid connections. For more information, refer to “Selecting Cable Sizes” of the Installation Guide.

Table 1 Troubleshooting Reference

#	LED	Problem	Possible Cause	Solution
4	Fault LED: On Buzzer: Beeping every second.	Inverter is in overvoltage shutdown.	High input voltage	Make sure the inverter is connected to a 12 V battery. Check the voltage regulation of the charging system. To reset: turn power switch off then on again.
5	Fault LED: On Buzzer: Beeping every second.	Inverter is in overload shutdown.	Load applied is above the continuous operation limit.	Reduce the load if continuous operation is required. To reset: turn power switch off then on again.
6	Fault LED: On Buzzer: Beeping every second.	Inverter is in internal over temperature shutdown.	Ambient temperature is too high. Load applied is above the continuous operation limit.	Reduce the ambient temperature. Reduce the load if continuous operation is required.
7	Fault LED: On Buzzer: Beeping every second.	Inverter is in short circuit shutdown.	Inverter has short-circuited.	Disconnect DC power to the inverter. Have a qualified electrician check the AC output connections, wiring, and appliances for indications of short circuits. To reset: turn inverter's main ON/STANDBY switch to Off and then On again.

Table 1 Troubleshooting Reference

#	LED	Problem	Possible Cause	Solution
8	Fault LED: On Buzzer: Beeping every second.	Inverter internal problem.	Internal fuse blown.	Internal fuse is not user-replaceable. See your warranty card.
8	N/A	Low output voltage (96 VAC–104 VAC)	You are using a voltmeter that cannot accurately read the RMS voltage of a modified sine wave.	Use a true RMS reading voltmeter such as the Fluke 87.
9	N/A	Low output voltage on a true RMS reading voltmeter.	Low input voltage and the load is close to maximum allowable power.	Check the connections and DC cables and check if the battery is fully charged. Recharge the battery if it is low. Reduce the load.
10	N/A	No AC output voltage; no DC input voltage indication.	The inverter is off. No power to the inverter. Battery disconnect switch or breaker is off.	Turn the inverter on. Check if the DC cables are connected from battery to the inverter. Close battery disconnect switch or breaker.

Table 1 Troubleshooting Reference

#	LED	Problem	Possible Cause	Solution
11	N/A	No AC output voltage; there is DC input voltage indication.	20 A supplementary protector tripped.	Reduce the AC load and reset the supplementary protector by pressing the reset button.
			The inverter could have been connected with reverse DC input polarity.	The inverter has been damaged. Return the inverter. Go to www.xantrex.com for information. **Note:** Damage caused by reverse polarity is not covered by the warranty.
			GFCI may have tripped.	Reset the GFCI.

Specifications

NOTE: Specifications are subject to change without prior notice.

Electrical Specifications

Output power at 77 º F (25 ºC) ambient temperature and 12 VDC input: Maximum continuous output power Five-minute rating	 2500 W 3000 W
Output power at 104 º F (40 ºC) ambient temperature and 12 VDC input: Maximum continuous output power	 1900 W
Output current: Maximum continuous output (AC) Five-minute rating (AC)	 21 A 26 A
Output voltage	115 Vac ± 5%
Output waveform	Modified sine wave
Output frequency	60 Hz ± 1 Hz
Input voltage	10.5–15.5 Vdc (12 Vdc nominal)
Input current: Maximum continuous output Five-minute rating	 260 A 310 A
Low battery alarm	11.0 V

Electrical Specifications

Low battery cutout	10.5 V
Optimum efficiency	90%
No load current draw	<0.6 Adc

Regulatory Approvals

Safety	ITS certified to CSA107.1 and UL458

Physical Specifications

Base Unit Dimensions and Weight:	
L × W × H	468×240×109 mm (18.5×9.5×4.3 in.)
Net Weight	5.9 kg (12.9 lbs)

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975-0555-01-01 Rev C

Printed in China.