



About Xantrex

Xantrex Technology Inc. is a world-leading supplier of advanced power electronics and controls with products ranging from small mobile units to utility-scale systems for wind, solar, batteries, fuel cells, microturbines, and backup power applications in both grid-connected and stand-alone systems. Xantrex products include inverters, battery chargers, programmable power supplies, and variable speed drives that convert, supply, control, clean, and distribute electrical power.

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Date and Revision

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Part Number

975-0271-01-01

Product Number

852-1802

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PowerSource 1800 Owner's Guide

IMPORTANT SAFETY INSTRUCTIONS

Operating the XPower PowerSource 1800 incorrectly or misusing it may damage the equipment or create hazardous conditions for the user.

SAVE THESE INSTRUCTIONS—This manual contains important instructions for the PowerSource 1800. Follow these instructions during installation and operation of this product.



WARNING: Shock hazard.

Keep away from children. PowerSource 1800 generates the same potentially lethal AC power as a normal household wall outlet.

- Do not insert foreign objects into the AC Outlet or the ventilation holes.
- Do not expose this product to water, rain, snow, or spray.



WARNING: Risk of injury or loss of life

Do not use PowerSource 1800 in connection with life support systems or other medical equipment or devices.



WARNING: Explosion hazard

Do not use this product where there are flammable fumes or gases.



WARNING: Electric shock and energy hazard

Do not remove cover. No user serviceable parts inside. Refer servicing to qualified service personnel.



WARNING: Energy and burn hazard

A battery can present a risk of burn from high short-circuit current.



CAUTION: Risk of damage to the PowerSource 1800

The unit will not work when connected to any AC load that has its neutral conductor connected to ground. Such loads include AC distribution wiring and house wiring.

FCC Information to the User

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Guidelines for Use

Important: The PowerSource 1800 is not suitable for use with certain products and loads

The continuous output wattage of this product is limited to 1800 watts total when supplying backup power from its batteries. This limit applies to the total of all items plugged into the product.

This output wattage is not sufficient to run products designed to produce large amounts of heat, including space heaters and pellet stove igniters.

Visit www.xantrex.com for higher power solutions.

Precautions for Using Rechargeable Appliances



CAUTION: Equipment Damage

When the PowerSource 1800 is supplying backup power from its batteries, its output is a non-sinusoidal modified sine wave, which is different from pure sine wave utility-supplied electricity. Certain types of load equipment may be damaged.

Most rechargeable battery-operated equipment uses a separate charger or transformer that is plugged into an AC receptacle and produces a low voltage charging output. Some chargers for rechargeable batteries can be damaged if connected to the PowerSource 1800.

Do not use the following with the PowerSource 1800:

- Small battery-operated appliances like flashlights, razors and night lights that can be plugged directly into an AC receptacle to recharge.
- Some chargers for battery packs used in hand power tools. These chargers display a warning label stating that dangerous voltages are present at the battery terminals.

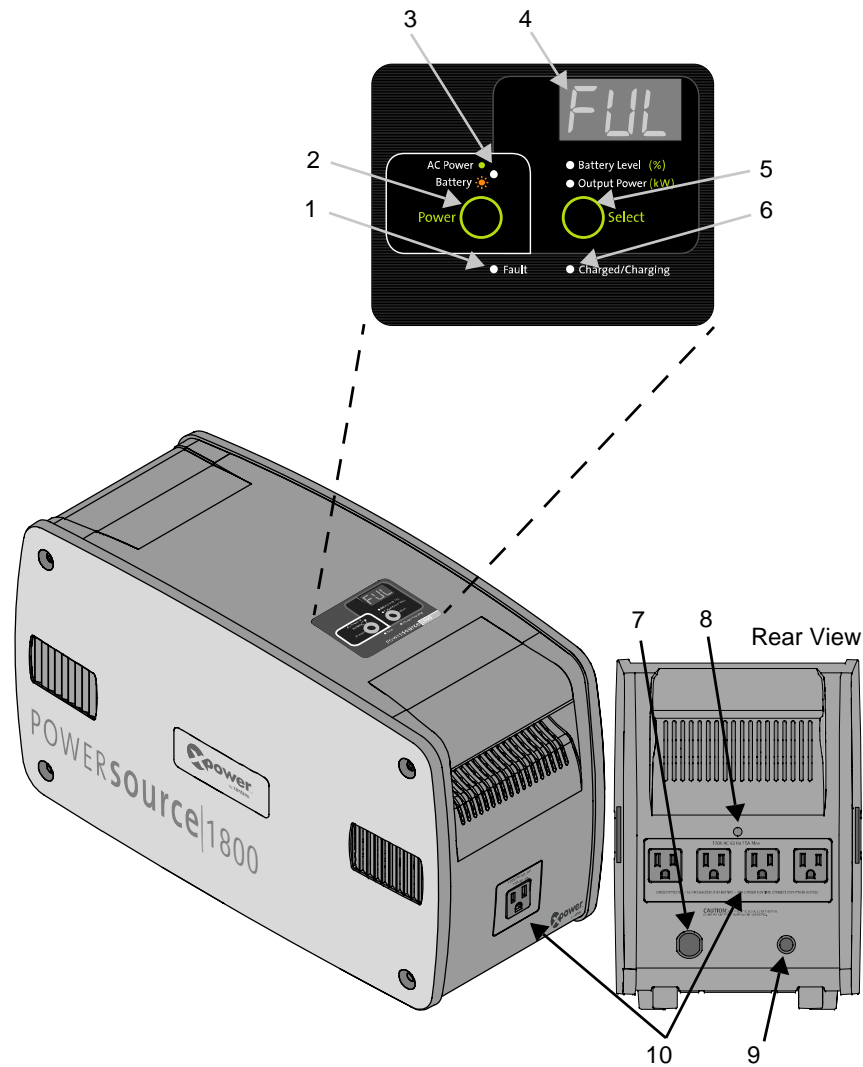
Note: If you are unsure about using your rechargeable appliance with the PowerSource 1800, contact the equipment manufacturer to determine the rechargeable appliance's compatibility with the modified sine wave (non-sinusoidal) AC wave form.

Products with Potential Problems

Some products, including the types listed below, may be damaged if they are connected to the PowerSource 1800:

- Speed controllers found in some fans, power tools, kitchen appliances, and other loads may be damaged.
- Metal halide arc (MHI) lights can be damaged.

Features



Feature	Description
1	Fault LED illuminates red when PowerSource 1800 has an operation fault.
2	Power button turns PowerSource 1800 on and off when utility power is not available. <ul style="list-style-type: none"> Pressing and holding the Power button for at least half a second turns the unit on or off when utility power is not present. When utility power is available, the Power button cannot be used to remove power from any or all of the five AC outlets
3	AC Power/Battery LED illuminates green when utility power is available and flashes amber when PowerSource 1800 is providing backup power using its internal battery.
4	LED Screen indicates charging status, power draw from the PowerSource 1800 (W) when providing backup power, or battery capacity (%). The screen also shows error codes to aid troubleshooting.
5	Select Button displays PowerSource 1800 Battery Level (%) or Output Power (W).
6	Charged/Charging LED (green) illuminates when PowerSource 1800 is fully recharged and flashes while PowerSource 1800 is recharging.
7	AC Power Cord
8	Blue LED illuminates the rear AC outlets when AC power is available.
9	15 A supplementary protector protects the PowerSource 1800 AC outlets and your applications from overload conditions.
10	Five 120V AC outlets (One in the front, four in the rear) for powering office equipment and household appliances that draw a maximum total of 1800 watts (1440 watts continuous). All outlets are surge protected and backed up by the PowerSource 1800 internal battery.

Installation and Operation



WARNING: Shock Hazard

If the input plug is connected and utility power is present, the outlets will be energized. The front panel ON/OFF button will not turn these outlets off.

Important: PowerSource 1800 should be used or stored in a clean, temperature-controlled, indoor area away from direct sunlight, moisture or conductive contaminants.

Important: PowerSource 1800 must be charged before storage or use. This will prevent the battery inside from totally discharging and will ensure extended usage run time. A complete charge may take up to 15 hours when recharged from a 120 VAC wall outlet.



CAUTION: Equipment Damage

- Do not plug surge-protected power bars into the unit's 120 VAC outlets.
- Do not connect an AC power source to the 120 VAC outlets.
- Do not connect the unit's AC power cord to its 120 VAC outlets.

Important: During installation when placing the unit, allow a minimum of 3 inches of space around the unit for optimal ventilation.

Operation Guide

Condition	LED status	Alarm status	Alarm stops sounding when...
Normal operation: Utility power is available and unit is turned on. The internal battery is fully charged.	AC Power LED and Charged/Charging LED are solid green. Screen shows "FUL."	None	Not applicable
Backup power: Utility power is not available. Unit supplies power from its internal battery.	Battery LED is flashing amber.	One beep when the power outage occurs.	Utility power becomes available; unit resumes normal operation or when it is turned off.
Low battery warning: During backup power operation, the internal battery is close to being completely discharged.	Battery LED is flashing amber. Screen shows Error code E05.	Beeps once every 2 seconds.	Utility power becomes available; unit resumes normal operation or when it is turned off.
Overload shutdown: During backup power operation an AC outlet overload was detected.	Fault LED on. Screen shows Error code E03.	One beep per second. Unit shuts down after 10 seconds.	Not applicable
Under-voltage shutdown: During backup power operation the battery power has been completely exhausted. No power is available at the AC outlets.	Fault LED on. Screen shows error code E01.	One beep per second. Unit shuts down after 10 seconds.	Not applicable. Unit starts recharging the internal battery when utility power is restored. Turn on the unit to restore normal operation.
Over-temperature warning: During backup power operation, the unit is close to shutting down to protect its internal circuitry from high temperatures.	Fault LED on. Screen shows error code E06.	Beeps once every 2 seconds.	Better ventilation is provided to the unit, or the unit enters over-temperature shutdown, or the unit is turned off.
Over-temperature shutdown: Unit has shut down to protect its internal circuitry from high temperatures.	Fault LED on. Screen shows error code E04.	One beep per second.	The unit is turned off or when the unit shuts down.
Recharging internal battery: Unit is recharging its internal battery after utility power has been restored. Internal fan is running.	AC Power LED is green. Charged/Charging LED flashes amber. Screen shows "CHG" alternating with battery capacity (%).	No sound	Not applicable. Screen shows "FUL" when unit is completely charged.

To install PowerSource 1800:

1. Plug the power cord directly into a wall outlet (not into a surge protector or power strip).
2. Connect your electronic devices or small household appliances to the five AC outlets of the PowerSource 1800.
3. Turn on the unit by pressing the Power button for at least half a second. The green AC Power LED confirms that the PowerSource 1800 is on and ready to provide backup power.

When the battery needs recharging, the LED screen flashes "CHG" 10 times, then the battery capacity (%) once. This pattern of flashing continues until the battery capacity reaches 100% and "FUL" appears on the screen.

Backup Power Feature

The unit's five 120 VAC outlets are permanently backed up by the internal battery when utility power is not available. To activate the AC outlets for backup operation, turn on the unit using the Power button. During a power outage or other utility problem (such as brownouts and over-voltages), PowerSource 1800 will keep running the connected products for up to 10 hours, depending on the power draw of your application (see "Run Time on Typical Products" and "Run Time for Combinations of Products"). When utility power is restored, the unit automatically recharges its internal battery.

Important: When connected to utility power, the unit automatically provides AC power from its internal battery when the utility voltage falls below 105 VAC.

AC Power Capabilities

Power Consumption of Loads	Normal Operation with Utility Power	Ability to Provide Backup Power
Up to 1800 W	Yes	Yes (up to 1440 W continuous in backup power mode)
Over 1800 W	No. Supplementary protector may trip.	No. Overload shutdown.

To check the total power consumption of the products plugged into PowerSource 1800 during backup power mode, press the Select button and view the Output Power (W) on the screen.

To test the PowerSource 1800 backup power capabilities after installing the unit, unplug the AC power cord to simulate a power outage. Ensure the products connected to the PowerSource 1800 continue operating. You can test the surge capabilities of the PowerSource 1800 by turning connected products on and off while the unit is unplugged. If products fail to operate or the screen shows an error code, see “Troubleshooting”.

Run Time on Typical Products

Product	Watts ^a	Run Time ^b	Product	Watts ^a	Run Time ^b
Cordless phone	5	63 h	Table lamp	40	10.5 h
Cell phone	5	63 h	13" TV	38	11 h
Internet modem	6	56 h	Desktop computer	200	1.5 h
Inkjet printer	8	46 h	8.8 cu. ft. freezer	80	4.5 h
Clock radio	8	46 h	18 cu. foot fridge	120	2.8 h
Laptop computer	20	22 h	Sump pump ½ HP	300	1 h
20" LCD monitor	52	7.5 h	Microwave	920	12 min

a. Average power consumption as measured on loads tested under regular operating conditions. Rated power may differ from average power consumption.

b. Run time as measured on tested loads.

Run Time for Combinations of Products

Product	Run Time ^b
Laptop, inkjet printer, cordless phone, Internet modem	up to 10 h
Desktop computer, 17" LCD monitor, inkjet printer, Internet modem, cordless phone	up to 1.6 h
Cordless phone, 13" TV, clock radio, table lamp	up to 4 h
18 cubic foot refrigerator, home alarm system	up to 2.6 h

Power Management Tips

During a power outage, maximizing PowerSource 1800 run time is essential to keep your home/small office running or to stay connected to the outside world through TV and radio news or cellphone/cordless phone. Therefore, in order to maximize the run time for combinations of office products plugged into PowerSource 1800, you may want to use the following alternatives:

Use...	Instead of...
Inkjet printer	Laser printer
Laptop, or desktop computer with LCD monitor	Desktop computer with CRT monitor
Monitor energy saving mode settings	Bright monitor settings
7 or 13" TVs	Big screen TVs
Small desk lamps (25 to 40 W)	High-wattage lamps

Battery Replacement

The battery pack in this product consists of three 17 amp-hour batteries. When they come to the end of their useful service life they may be replaced with equivalent sealed lead acid batteries by a qualified battery technician. Suitable replacement batteries are Panasonic® #LC-X1220P and EnerSys™ #NPX-80. Information on other replacement battery brands and dealers is in the battery replacement guide in the Frequently Asked Questions (FAQ) section of the Xantrex Support site at www.xantrex.com/support.

Recycling

PowerSource 1800 is designed to provide years of service. However, when the internal batteries reach the end of their service life, and if you choose not to have a qualified technician replace them, the PowerSource 1800 itself is no longer of use. The internal batteries may be replaced following the guidelines in “Battery Replacement” above.

Because the internal batteries contain lead, which can be hazardous to the environment, the batteries and the PowerSource 1800 should be recycled or safely disposed of at your local recycling depot. Do not dispose of the batteries and the PowerSource 1800 with common household waste. Please ask your local authorities about recycling services that are available in your area.

Troubleshooting

Understanding Error Codes

If the products connected to PowerSource 1800 do not operate and the alarm is sounding, check PowerSource 1800 LED screen for an error code.

Error	Possible Cause	Solution
E01	Low voltage shutdown because battery is discharged.	Recharge battery by plugging the AC power cord into a wall outlet.
E03	Overload shutdown while supplying backup power. The AC product(s) connected are consuming more than PowerSource 1800's power rating. The AC products connected have a surge power that exceeds PowerSource 1800 surge capability. One or more of the connected products are damaged.	Use products with a total power consumption within PowerSource 1800's continuous power rating of 1440 W. Use products with a total starting surge power within PowerSource 1800's capability of 2880 W. Have the damaged product serviced by a qualified technician.
E04	Over-temperature shutdown has occurred. PowerSource 1800 has overheated due to poor ventilation, excessive ambient temperature, or power demand beyond the unit's output power capability.	Disconnect products from the AC outlets. Allow the unit to cool for 20 minutes. Clear blocked fan or remove objects covering unit. Move the unit to a cooler place. Reduce load to less than 1800 W if continuous operation is required.
E05	Under-voltage warning. The battery is nearly discharged.	Reduce the load to extend run time during backup mode. Assuming the AC power cord was unplugged and the unit turned to backup mode, when utility power is present or becomes available, recharge the battery by plugging the AC power cord into a wall outlet.
E06	Over-temperature warning. PowerSource 1800 is overheating due to poor ventilation, excessive ambient temperature, or high power demand.	Reduce the load to avoid over-temperature shutdown, clear blocked fan or remove objects covering unit, or move the unit to a cooler place.

Troubleshooting Reference

Problem	Problem/Symptom	Solution
PowerSource 1800 will not turn on.	Battery is discharged and utility power is not available at the wall outlet.	Ensure power is available at the wall outlet.
No power available at the 120 VAC outlets.	AC outlet has been overloaded or the supplementary protector has tripped.	Reduce the number of products plugged into the AC outlets. Check the supplementary protector at the back of the unit. If necessary, reset the breaker by pushing it fully inward.
AC utility is not available and products connected to unit lose power.	PowerSource 1800 has detected an overload condition.	Make sure the products plugged into the AC outlets are not exceeding the output power rating of the unit when supplying backup power. Try removing or substituting some of the products.
	PowerSource 1800 has detected an over-temperature condition.	Disconnect products from the AC outlets. Make sure the products plugged into the AC outlets are not overloading the continuous output power rating of the unit when supplying backup power. Allow the unit to cool, increasing ventilation if necessary. If the unit is left on, it restarts automatically when the unit cools down.
	PowerSource 1800 has exhausted its available battery power. PowerSource 1800 may require service.	PowerSource 1800 shuts down when all available battery power has been used. Allow the unit to recharge for 15 hours before continuing to use the unit. Contact Xantrex Technical Support for further troubleshooting (see "Contact Information" on page 1).
Products connected to unit malfunction or overheat.	Products connected to PowerSource 1800 do not accept modified sine wave form.	Your application is not compatible with PowerSource 1800 modified sine wave output. See "Precautions for Using Rechargeable Appliances" on page 2.
Inadequate run time.	PowerSource 1800 battery is not fully charged.	Charge the battery by leaving PowerSource 1800 plugged into a wall outlet at least 15 hours.
	Battery is near the end of its useful life.	As the battery ages, the available run time decreases. The internal battery also ages prematurely if PowerSource 1800 is installed in a hot environment or not kept in a charged condition. See "Battery Replacement" on page 5.
	PowerSource 1800 has turned off.	Press for at least half a second to turn unit on.

Specifications

Electrical Specifications

Output Specifications

Continuous output power	1440 W
Peak AC output power	1800 W
Surge capacity	2880 W
Output voltage (nominal)	120 VAC
Output frequency	60 Hz
Output wave form	Modified sine wave
Transfer switch	15 A maximum/<80 milliseconds
Surge suppression	Yes
Inverter on (no-load current draw)	< 0.6 A (battery drain)
Charging time	15 hours from 120 VAC

12 V DC Specifications

Internal battery type	Sealed lead acid, AGM
Internal battery capacity	51 amp-hours (3 × 17 amp-hour batteries)
Internal battery voltage	12 VDC (nominal)
Low battery alarm	11.0 V (nominal)
Low battery shutdown	10.5 V (nominal)
Internal charger charging current	5 A DC maximum

General Specifications

Operating/Storage temperature	32–86 °F (0–30 °C)/32–104 °F (0–40 °C)
Dimensions (H × W × L)	19.25 × 8.25 × 11.25" (48.9 × 21 × 28.6 cm)
Weight	51.2 lb (23.2 kg)

Approvals

ETL Certified to UL 1778 2nd Edition and CSA C22.2 no. 107.1-01 standby UPS Standards
FCC Class B

All specifications are subject to change without notice.

Warranty

What does this warranty cover? This Limited Warranty is provided by Xantrex Technology Inc. ("Xantrex") and covers defects in workmanship and materials in your XPower PowerSource 1800. This warranty period lasts for 12 months from the date of purchase at the point of sale to you, the original end user customer. You require proof of purchase to make warranty claims.

What will Xantrex do? Xantrex will, at its option, repair or replace the defective product free of charge, provided that you notify Xantrex of the product defect within the Warranty Period, and provided that Xantrex through inspection establishes the existence of such a defect and that it is covered by this Limited Warranty.

Xantrex will, at its option, use new and/or reconditioned parts in performing warranty repair and building replacement products. Xantrex reserves the right to use parts or products of original or improved design in the repair or replacement. If Xantrex repairs or replaces a product, its warranty continues for the remaining portion of the original Warranty Period or 90 days from the date of the return shipment to the customer, whichever is greater. All replaced products and all parts removed from repaired products become the property of Xantrex.

Xantrex covers both parts and labor necessary to repair the product, and return shipment to the customer via a Xantrex-selected non-expedited surface freight within the contiguous United States and Canada. Alaska and Hawaii are excluded. Contact Xantrex Customer Service for details on freight policy for return shipments outside of the contiguous United States and Canada.

If your product requires warranty service or troubleshooting, please contact your dealer. If you are unable to contact your dealer, or the dealer is unable to provide service, contact Xantrex directly at:

Telephone: 1 408 987 6030 (direct)

Fax: 1 360 925 5143 (direct)

Email: customerservice@xantrex.com

What proof of purchase is required? In any warranty claim, dated proof of purchase must accompany the product and the product must not have been disassembled or modified without prior written authorization by Xantrex.

Proof of purchase may be in any one of the following forms:

- The dated purchase receipt from the original purchase of the product at point of sale to the end user, or
- The dated dealer invoice or purchase receipt showing original equipment manufacturer (OEM) status, or
- The dated invoice or purchase receipt showing the product exchanged under warranty

What does this warranty not cover? This Limited Warranty does not cover normal wear and tear of the product or costs related to the removal, installation, or troubleshooting of the customer's electrical systems. This warranty does not apply to and Xantrex will not be responsible for any defect in or damage to:

- a) the product if it has been misused, neglected, improperly installed, physically damaged or altered, either internally or externally, or damaged from improper use or use in an unsuitable environment;

Warranty

- b) the product if it has been subjected to fire, water, generalized corrosion, biological infestations, or input voltage that creates operating conditions beyond the maximum or minimum limits listed in the Xantrex product specifications including high input voltage from generators and lightning strikes;
- c) the product if repairs have been done to it other than by Xantrex or its authorized service centers (hereafter "ASCs");
- d) the product if it is used as a component part of a product expressly warranted by another manufacturer;
- e) the product if its original identification (trade-mark, serial number) markings have been defaced, altered, or removed.

Disclaimer

Product

THIS LIMITED WARRANTY IS THE SOLE AND EXCLUSIVE WARRANTY PROVIDED BY XANTREX IN CONNECTION WITH YOUR XANTREX PRODUCT AND IS, WHERE PERMITTED BY LAW, IN LIEU OF ALL OTHER WARRANTIES, CONDITIONS, GUARANTEES, REPRESENTATIONS, OBLIGATIONS AND LIABILITIES, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE IN CONNECTION WITH THE PRODUCT, HOWEVER ARISING (WHETHER BY CONTRACT, TORT, NEGLIGENCE, PRINCIPLES OF MANUFACTURER'S LIABILITY, OPERATION OF LAW, CONDUCT, STATEMENT OR OTHERWISE), INCLUDING WITHOUT RESTRICTION ANY IMPLIED WARRANTY OR CONDITION OF QUALITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE TO THE EXTENT REQUIRED UNDER APPLICABLE LAW TO APPLY TO THE PRODUCT SHALL BE LIMITED IN DURATION TO THE PERIOD STIPULATED UNDER THIS LIMITED WARRANTY.

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PERSONAL INJURY, ANY DAMAGE OR INJURY ARISING FROM OR AS A RESULT OF MISUSE OR ABUSE, OR THE INCORRECT INSTALLATION, INTEGRATION OR OPERATION OF THE PRODUCT.

Exclusions

If this product is a consumer product, federal law does not allow an exclusion of implied warranties. To the extent you are entitled to implied warranties under federal law, to the extent permitted by applicable law they are limited to the duration of this Limited Warranty. Some states and provinces do not allow limitations or exclusions on implied warranties or on the duration of an implied warranty or on the limitation or exclusion of incidental or consequential damages, so the above limitation(s) or exclusion(s) may not apply to you. This Limited Warranty gives you specific legal rights. You may have other rights which may vary from state to state or province to province.

Return Material Authorization Policy

Before returning a product directly to Xantrex you must obtain a Return Material Authorization (RMA) number and the correct factory "Ship To" address. Products must also be shipped prepaid. Product shipments will be refused and returned at your expense if they are unauthorized, returned without an RMA number clearly marked on the outside of the shipping box, if they are shipped collect, or if they are shipped to the wrong location.

When you contact Xantrex to obtain service, please have your instruction manual ready for reference and be prepared to supply:

- The serial number of your product
- Information about the installation and use of the unit
- Information about the failure and/or reason for the return
- A copy of your dated proof of purchase