

Smart choice for power

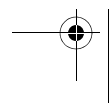
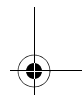
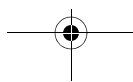
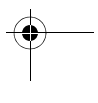
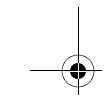
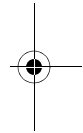
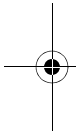
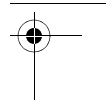
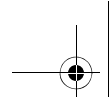
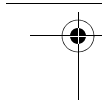
xantrex

40 A (XADC-40)
60 A (XADC-60)
80 A (XADC-80)

Owner's Guide

Xantrex AC to DC Converter

www.xantrex.com



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Owner's Guide

About Xantrex

Xantrex Technology Inc. is a world-leading supplier of advanced power electronics and controls with products from 50 watt mobile units to one MW 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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- (C) REMINDS YOU THAT IF THIS MANUAL IS IN ANY LANGUAGE OTHER THAN ENGLISH, ALTHOUGH STEPS HAVE BEEN TAKEN TO MAINTAIN THE ACCURACY OF THE TRANSLATION, THE ACCURACY CANNOT BE GUARANTEED. APPROVED XANTREX CONTENT IS CONTAINED WITH THE ENGLISH LANGUAGE VERSION WHICH IS POSTED AT WWW.XANTREX.COM.

Date and Revision

March 2007 Revision D

Part Number

975-0305-01-01

Contact Information

Website: www.xantrex.com

About This Guide

Purpose

The purpose of this Owner's Guide is to provide explanations and procedures for operating and troubleshooting the Xantrex AC to DC Converter (XADC).

Scope

The Guide provides information about operating and troubleshooting the unit.

Audience

The Guide is intended for anyone who needs to operate and troubleshoot the XADC.

Organization

This Guide is organized into two chapters and one appendix:

Features: Chapter 1 introduces the Xantrex AC to DC Converter, shows where the major components are and lists the special features.

Operation and Troubleshooting: Chapter 2 describes how to operate the XADC and common situations or problems that may arise and possible solutions.

Specifications: Appendix A contains electrical performance and physical specifications for the XADC.

About This Guide

Conventions Used

The following conventions are used in this guide.



WARNING

Warnings identify conditions or practices that could result in personal injury or loss of life.



CAUTION

Cautions identify conditions or practices that could result in damage to the unit or to other equipment.

Important: These notes describe an important action item or an item that you must pay attention to.

This Guide contains information for three versions of the Xantrex AC to DC Converter.

The 40 Amp Xantrex AC to DC Converter will be referred to as the XADC-40 when it is being referenced individually.

The 60 Amp Xantrex AC to DC Converter will be referred to as the XADC-60 when it is being referenced individually.

The 80 Amp Xantrex AC to DC Converter will be referred to as the XADC-80 when it is being referenced individually.

When the Xantrex XADC-40, XADC-60 and XADC-80 are being referenced together, they will be referred to as the XADC.

Related Information

You can find more information about Xantrex Technology Inc. as well as its products and services at www.xantrex.com

Important Safety Instructions



WARNING: Limitations on Use

The Xantrex AC to DC Converter is not intended for use in connection with life support systems or other medical equipment or devices.



WARNING

This chapter contains important safety and operating instructions. Read and keep this Owner's Guide for future reference.

1. Before using the XADC, read all instructions and cautionary markings on the XADC, the batteries, and all appropriate sections of this guide.
2. Do not expose the XADC to rain, snow, spray, or water. To reduce risk of fire hazard, do not cover or obstruct the ventilation openings. Overheating may result.
3. To avoid a risk of fire and electric shock, make sure that existing wiring is in good condition and that wire is not undersized. Do not operate the XADC with damaged or substandard wiring.
4. Do not operate the XADC if it has received a sharp blow, been dropped, or otherwise damaged in any way. If the XADC is damaged, see the Warranty section.
5. Do not disassemble the XADC. It contains no user-serviceable parts and attempting to service it will void your warranty. See Warranty for instructions on obtaining service. Attempting to service the XADC yourself may result in a risk of electrical shock or fire as the XADC remains charged after all power is disconnected.
6. To reduce the risk of electrical shock, disconnect both AC and DC power from the XADC before attempting any maintenance or cleaning or working on any circuits connected to the XADC.

Safety

Precautions When Working With Batteries



WARNING: Explosion or fire hazard

1. Follow all instructions published by the battery manufacturer and the manufacturer of the equipment in which the battery is installed. Working in the vicinity of batteries may be dangerous. Batteries generate explosive gases during normal operation, therefore, you must read this guide and follow the instructions exactly before using your XADC.
2. Make sure the area around the battery is well ventilated.
3. Never smoke or allow a spark or flame near the engine or batteries.
4. Use caution to reduce the risk of dropping a metal tool on the battery. It could spark or short circuit the battery or other electrical parts and could cause an explosion.
5. Remove all metal items, like rings, bracelets, and watches when working with lead-acid batteries. Lead-acid batteries produce a short circuit current high enough to weld metal to skin, causing a severe burn.
6. Have someone within range of your voice or close enough to come to your aid when you work near a lead-acid battery.
7. Have plenty of fresh water and soap nearby in case battery acid contacts skin, clothing, or eyes.
8. Wear complete eye protection and clothing protection. Avoid touching your eyes while working near batteries.
9. 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.

10. If you need to remove a battery, always remove the ground terminal from the battery first. Make sure all accessories are off so you don't cause a spark.
11. Use the XADC for charging a lead-acid battery only. Do not use the XADC to charge nickel-cadmium or dry-cell batteries commonly used with home appliances and electronic equipment. These batteries may burst and cause injury to persons and damage to property.
12. Never attempt to charge a frozen battery. Charging a battery when its temperature is below 32 °F (0 °C) is inefficient and ineffective. If possible, warm the battery above 32 °F (0 °C) before charging.

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 when the equipment is operated in a residential environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction guide, 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 on and off, 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 which the receiver is connected
- Consult the dealer where the XADC was purchased or an experienced radio/TV technician for help

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1 Features

Introduction

The Xantrex AC to DC Converter (XADC) is a family of converter/chargers, consisting of 40A (XADC-40), 60A (XADC-60), and 80A (XADC-80) units. All XADC units will accept a broad range of 120 Vac input power and convert it into a 3-step DC charge algorithm designed for use with 12Vdc battery systems and/or to power DC loads. The XADC can operate from generator power and potentially poor quality campground power. The XADC is available as either a standalone product or integrated with an optional AC/DC Distribution Panel.

Special Features

The XADC has many convenient features:

- Current limiting, over-temperature protection, input under-voltage protection and input over-voltage protection to give you worry-free, safe operation
- Three stage, power factor corrected, charging means more AC power is available to run other appliances
- Ability to recharge completely “dead” batteries (0 Volts)
- Both input and output ventilation on one side for maximum flexibility in installation
- Optional AC/DC Distribution Panel for ease of installation and maintenance
- Ultra-quiet fan operation
- Battery reverse polarity protection to prevent damage to the unit in the event of a reverse polarity connection

Main Components

Figure 1-1 shows the main components of the XADC.

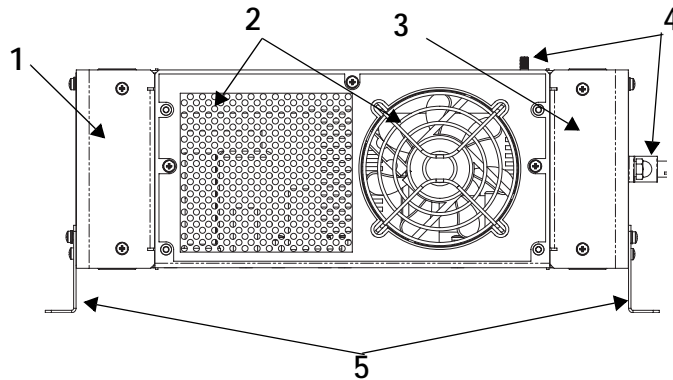


Figure 1-1 XADC External Components

Item	Description
1	AC wiring compartment
2	Intake and outflow vents (do not obstruct)
3	DC wiring compartment
4	Ground connection (2 locations)
5	Mounting flanges

Optional AC/DC Distribution Panel

The XADC may be pre-installed with an AC/DC Distribution Panel. The panel is available in two configurations which provides the approved wiring boxes for AC and DC connections:

30A (Part Number: 810-0030-00 XADC P30) – eight output breakers

50A (Part Number: 810-0050-00 XADC P50) – 10 output breakers

In each configuration there are also 11 unassigned DC fuses and four reserved fuses for the battery connections.

Main Components

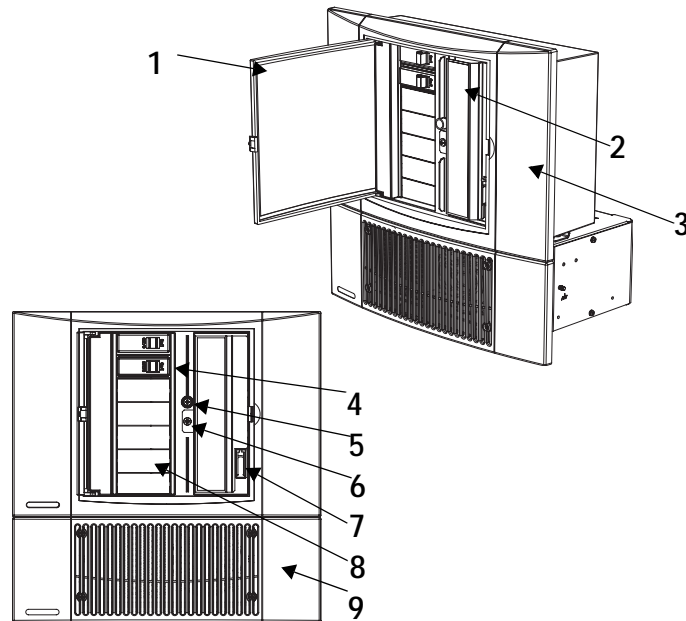
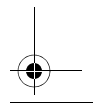
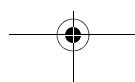
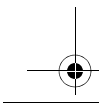
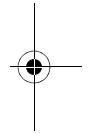
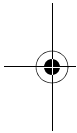
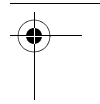
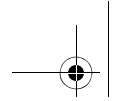
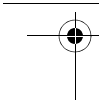


Figure 1-2 AC/DC Distribution Panel Components

Item	Description
1	DC fuse/AC breaker access panel (swings open with thumb latch)
2	Removable DC fuse access panel with DC circuit designation label.
3	Removable AC/DC Distribution Panel faceplate (service technician only)
4	AC breakers (not included)
5	Screw for removing AC/DC panel faceplate (service technician only)
6	Screw for removing DC fuse access panel
7	Fuse puller
8	AC breaker knockouts
9	Removable faceplate for XADC converter (service technician only)



2 Operation and Troubleshooting

Switching the XADC On and Off

The XADC is always On when AC voltage is applied. To switch the XADC Off, disconnect the AC input voltage by turning the AC breaker off.

Maintenance

It may be necessary to replace the DC fuses in the XADC.

Fuses for XADC should be:

XADC-40	XADC-60	XADC-80
$2 \times 30 \text{ A}^a$	$3 \times 30 \text{ A}^a$	$4 \times 30 \text{ A}^a$

a.Littelfuse Type 257 or equivalent

If the optional AC/DC Distribution Panel is installed, it may be necessary to replace the AC breakers and DC fuses.

Fuses for DC loads should be:

Littelfuse Type 257 or equivalent and the maximum allowed fuse for the DC loads is 20 A.

Breakers for the AC side should be:

MAIN: Cutler Hammer/Bryant/Westinghouse Type BR Series and ITE Gould QP Series. The maximum current rating for the main breaker is not to exceed the rating of the panelboard.

BRANCH: Cutler Hammer/Bryant/Westinghouse Type BR, BD Series and ITE Gould QP, QT Series. The maximum current rating for the branch breaker is not to exceed 20A.

Troubleshooting Reference



WARNING: Electric shock hazard

Do not remove the cover of the XADC or disassemble the XADC. The XADC does not contain any internal user-serviceable parts and attempting to service the unit yourself could result in electrical shock or burn and will also void your warranty.

Table 2-1 Troubleshooting reference

Problem	Possible Cause	Solution
XADC will not run	Cables are loose	Check DC and AC connections
	Output fuses are damaged or not installed	Check output fuses
	AC input breaker open	Check AC input breaker
	Short circuit in one or more of the load circuits	Remove load fuses one by one until XADC output voltage recovers, re-install load fuses one by one to find faulty load circuit(s)
	Internal temperature too hot	Check that the XADC has sufficient ventilation. Allow the XADC to cool down and restart.
	Something may be preventing the fan from turning. The unit has a safety shutoff in this situation.	Ensure that nothing is obstructing the fan operation.

A Specifications

Specifications are subject to change without notice.

Mechanical Specifications

Physical Specifications	XADC-40	XADC-60	XADC-80
Weight	7.9 lb (3.6 kg)	8.2 lb (3.7 kg)	8.3 lb (3.8 kg)
Operating temperature range	14 °F – 86 °F (-10 °C – 30 °C) de-rated 86 °F – 140°F (30 °C – 60 °C) > 140°F (60 °C) unit may shut down		
Length	11 13/16 in. (300.0 mm)		
Width	7 1/8 in. (180.0 mm)		
Height	4 3/4 in. (120.0 mm)		

Electrical Performance

AC Input	XADC-40	XADC-60	XADC-80
Input current (at rated output)	6 Aac	9 Aac	12 Aac
Nominal input voltage	120 Vac, 60 Hz		
Normal operating input voltage	108 Vac – 130 Vac		
Min. operating input voltage	90 Vac		
Max. operating input voltage	140 Vac		
Power factor (rated output, nominal input)	≥ 0.95		
Safe (non-operating) input voltage range	0 – 150 Vrms		
Frequency	50 – 70 Hz		

DC Output	XADC-40	XADC-60	XADC-80
Recommended battery bank size	220 Ah	220 Ah	400 Ah
Output current	40 Adc	60 Adc	80 Adc
Current limit (maximum)	44A	64 A	84 A
Nominal output voltage	13.5 Vdc (float charge) 14.2 Vdc (bulk/absorption charge)		
Min. output voltage	0 V		
Load regulation ^a	1.5% at terminals of XADC		
Line regulation ^b	1.5%		
No load voltage accuracy	0.1 Vdc		
Efficiency at nominal output	≥ 85%		
Battery draw when turned off	< 2 mA		

a. Load regulation is the converter's ability to maintain a constant output voltage as the load current changes.

b. Line regulation is the converter's ability to maintain a constant output voltage as the line (input) voltage changes.

Warranty and Return Information

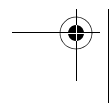
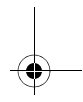
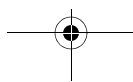
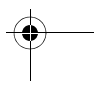
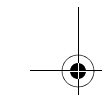
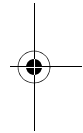
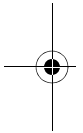
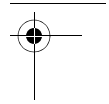
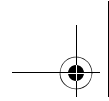
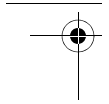
If your vehicle is within its factory warranty period:

The warranty for this product is covered under your vehicle's express warranty, please contact your vehicle manufacturer's owner services department for technical support and warranty service.

If your vehicle is out of its factory warranty period:

If the warranty period for your Xantrex AC to DC Converter has expired, if the unit was damaged by misuse or incorrect installation, if other conditions of the warranty have not been met, or if no dated proof of purchase is available, your unit may be serviced or replaced for a flat fee.

To return your Xantrex AC to DC Converter for out of warranty service, contact Xantrex Customer Service at 1-360-925-5097 for a Return Material Authorization (RMA) number. Payment options such as credit card or money order will be explained by the Customer Service Representative. In cases where the minimum flat fee does not apply, as with incomplete units or units with excessive damage, an additional fee will be charged. If applicable, you will be contacted by Customer Service once your unit has been received.





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