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ICM

Installation Guide

Inverter Control Module (ICM) Installation Guide

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Inverter Control Module

Installation Guide

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Date and Revision

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Part Number

975-0058-01-01

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About This Guide

Purpose

The purpose of this Installation Guide is to provide explanations and procedures for installing, operating, maintaining, and troubleshooting the Inverter Control Module (ICM).

Scope

The Guide provides safety guidelines and procedures for installing the ICM.

Audience

The Guide is intended for anyone who needs to install the ICM. Installers should be certified technicians or electricians.

Organization

This Guide contains one chapter.

Chapter 1, "Installation" describes how to install the Inverter Control Module (ICM).

Warranty and Product Information is provided at the end of the Guide.

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Conventions Used

The following conventions are used in this guide.



WARNING

Warnings identify conditions 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 other equipment.

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

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

Abbreviations and Acronyms

AC Alternating Current

ASC Authorized Service Center

DC Direct Current

ICM Inverter Control Module

RMA Return Material Authorization

Related Information

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

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Important Safety Instructions



WARNING

This section contains important safety and operating instructions for Inverter Control Modules (ICM) used in residential applications. Read and keep this Installation Guide for future reference.

- 1. Before installing the ICM, read all instructions and cautionary markings on the ICM, the batteries, and all appropriate sections of this guide.
- 2. Do not expose the ICM to rain, snow, or spray.
- 3. Use only attachments recommended or sold by the manufacturer. Doing otherwise may result in a risk of fire, electric shock, or injury to persons.
- 4. The remote ICM is an optional accessory designed to be permanently connected to your inverter and is intended to be used in addition to the one that originally comes with the inverter. Do not remove the ICM that originally comes with the inverter.
- 5. Installations of this equipment should only be performed by skilled personnel such as qualified electricians and Certified Renewable Energy (RE) System Installers to ensure adherence to the local and national electrical codes applicable in your application. For a list of Xantrex Certified RE dealers, please visit our website at www.XantrexREdealers.com.
- 6. Do not install the ICM if it has received a sharp blow, been dropped, or otherwise damaged in any way. If the unit is damaged, see the Warranty section at the end of this guide.
- 7. Do not disassemble the ICM. See "How do you get service?" on page WA-1 for instructions on obtaining service. Attempting to service the unit yourself may result in a risk of electrical shock or fire.
- 8. To reduce the risk of electrical shock, disconnect the ICM from the inverter before attempting any maintenance or cleaning or working on any circuits connected to the ICM.

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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 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.

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Installation

Chapter 1, "Installation" describes how to install the Inverter Control Module (ICM).

The following topics are covered in this chapter.

See:	for this topic:
page 1–2	"Introduction"
page 1–2	"Specifications"
page 1–4	"Code Compliance"
page 1–4	"Installation Tools and Materials"
page 1–4	"Planning your Installation"
page 1–5	"Installing the ICM"

Introduction

The Inverter Control Module (ICM) allows remote monitoring and adjustment of all settings on a Sine Wave Plus inverter. It can be installed up to 50 feet/15 meters from the inverter itself. The ICM (Figure 1-1) provides a remote Control Module identical to the Control Module on the inverter and can be operated in the same way.



Figure 1-1 The Inverter Control Module (ICM)

For more information on operating the ICM, please consult your Sine Wave Plus inverter owner's manual because the firmware and settings reside in the inverter.

Specifications

The **ICM** is available with two cable lengths.

- ICM/25 with 25 foot/7.5 meter communications cable
- ICM/50 with 50 foot/15 meter communications cable

The ICM consists of:

- the ICM faceplate, containing the LCD display and buttons used to control the inverter
- one adapter sleeve for use in the surface mount configuration
- one mounting bracket for attaching the assembly to the wall
- 4 screws and expansion plugs for attaching mounting bracket to wall
- a 25 or 50 foot communications cable with DB25 connectors.

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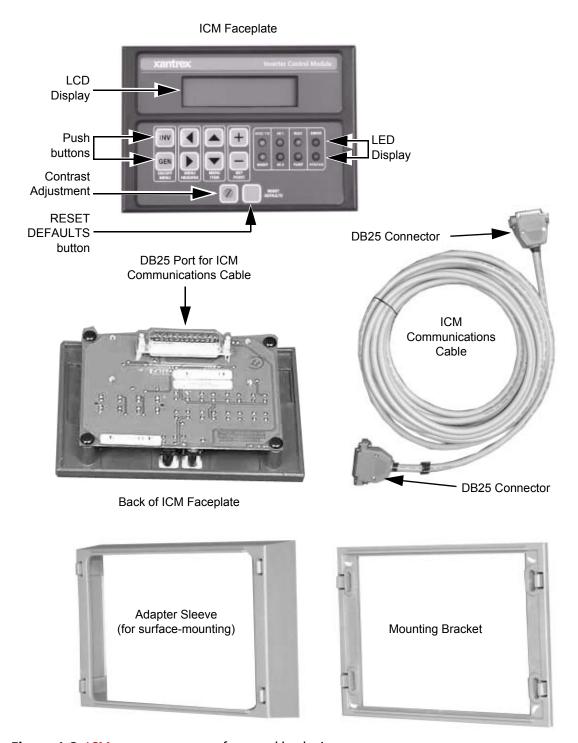


Figure 1-2 ICM component parts, front and back views

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Code Compliance

Governing installation codes vary depending on the location and type of installation. Electrical installations must meet local and national wiring codes and should be done by a qualified electrician.

Important: Be sure to obtain the appropriate permits, if necessary, prior to starting this installation.

Installation Tools and Materials

Tools Required	The following tools may be required for installing this equipment.			
		Pencil		
		Level		
		Wallboard/sheetrock saw		
		Phillips screw driver		
		3/32" and 3/16" drill bits		
		Electric drill		
		Electrician's fish tape		
Hardware /		Wire conduit		
Materials Required		Packing tape		

Planning your Installation

Determine the wire route to the inverter. The ICM should be mounted in/on a wall no more than 50 feet/15 meters or 25 feet/7.5 meters from the inverter, depending on whether it is the ICM/25 or the ICM/50.

Important: Mount the remote control in a clean, dry environment. Verify there are no electrical wires, etc., in the area of the cut.

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Installing the ICM

The ICM can be flush-mounted (only the faceplate protrudes from the wall) or surface-mounted (the entire assembly protrudes from the wall). In the flush-mount configuration the ICM faceplate is attached directly to the mounting bracket on the wall. In the surface-mount configuration the ICM faceplate is first attached to the adapter bracket, which is then attached to the mounting bracket on the wall.

Ensure that there is enough space within the wall for the mounting format you choose.



WARNING: Electrical Hazard

Ensure that no DC voltage is being supplied to the inverter, and that no AC voltage is present on the AC wiring. Failure to do so could cause serious injury or death.

The ICM Adapter Sleeve

The ICM adapter sleeve is used for surface-mounting the ICM faceplate. It attaches to the ICM mounting bracket. It is not used if the faceplate is to be flush-mounted.

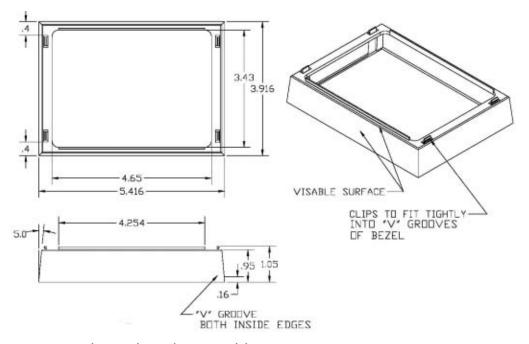


Figure 1-3 ICM Adapter Sleeve (not to scale)

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ICM Mounting Bracket

The ICM mounting bracket is used for both flush-mounting and surface-mounting.

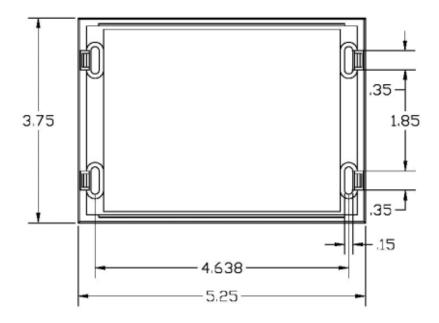


Figure 1-4 ICM Mounting Bracket (not to scale)

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Flush-Mount Installation

There are three major steps to flush-mounting the ICM in a wall:

- Install the ICM mounting bracket on the wall (below)
- Route the ICM cable in the wall (page 1–8)
- Attach the ICM to the wall and connect the cable to the inverter (page 1–9).

These steps are described in detail below.

Install the ICM mounting bracket on the wall

To install the **ICM** mounting bracket on the wall:

1. Use the mounting bracket as a template and mark the positions for the screw holes. Mark the open area to be cut out for the circuit board.

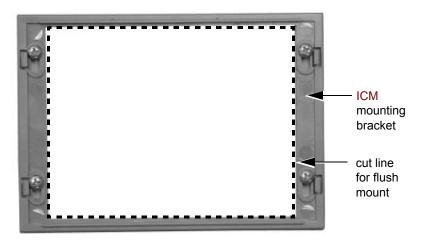


Figure 1-5 ICM mounting bracket on wall, flush mount cut line

- 2. Carefully cut out the circuit board area from the backing material (i.e., wallboard). Cut inside the lines so there is enough area left to securely hold the screws.
- 3. Remove any wall insulation (if applicable) that may contact the back of the ICM.

Important: There must be at least 4" clearance behind the opening to accommodate the DB25 connector that plugs into the back of the ICM.

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- 4. Drill out the four screw's holes (if required) and cut out the wire access opening. Use a 3/16" bit if the supplied plastic anchors are used. If placing the screws directly into the backing material, use a 3/32" bit.
- 5. Install the mounting bracket on the wall using the screws (and anchors if necessary) supplied. Do not overtighten the screws.

Route the ICM cable in the wall

To route the ICM cable in the wall:

1. Route a wire conduit from the AC end of the inverter (or ACCB accessory if installed) up to the opening in the wall. Insert electrician's fish tape in the end of the conduit at the wall opening until the end appears at the inverter end of the conduit.

Note: The ICM cable should be able to fit through most 1 ½" conduit fittings. The conduit for the ICM cable should not contain other AC or DC power conductors.

2. Unscrew the two screws and nuts from the connector housing of one of the ICM cable plugs and carefully remove the plastic housing (two pieces) from the plug, leaving the wires and DB25 connector attached to the cable (Figure 1-6).

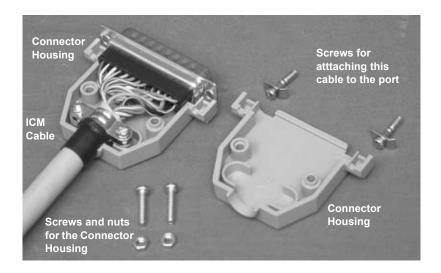


Figure 1-6 Disassembling the ICM plug

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3. Carefully tape the connector to the end of the fish tape, so that it will fit into the conduit without damaging the connector or attached wires (see Figure 1-7).









Figure 1-7 Inserting ICM cable into conduit

- 4. Pull the ICM cable up to the wall opening with the fish tape.
- 5. Re-assemble the plug using the two screws and nuts removed earlier to re-attach the plastic housing to the connector and cable.

Attach the ICM to the wall and connect to the inverter

To attach the **ICM** flush to the wall:

1. Plug the DB25 connector into the DB25 Port on the back of the ICM faceplate. Secure with the two screws provided.

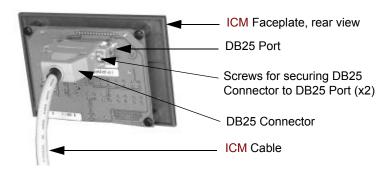


Figure 1-8 ICM Attached to Faceplate for Flush Mounting

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2. Snap the faceplate onto the mounting bracket on the wall.

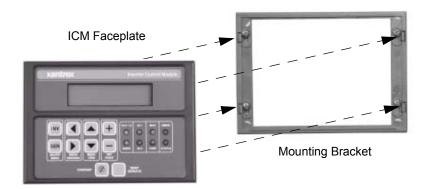


Figure 1-9 Mounting the Faceplate to the Mounting Bracket

3. Plug the other end of the communications cable into the Remote Port on the AC side of the inverter (Figure 1-10). Secure with the two screws provided.

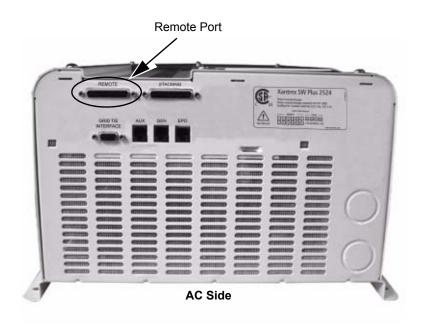


Figure 1-10 Sine Wave Plus inverter Remote Port Location

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Surface-Mount Installation

Surface-mounting the ICM on a wall follows the same major steps as for flush-mounting (page 1–7), except for the differences noted below.

Install the ICM mounting bracket on the wall

To install the ICM mounting bracket on the wall:

- 1. Follow the instructions for installing the ICM mounting bracket on page 1–7 except for step 2, which is replaced by the following:
- 2. Carefully cut out a rectangular area (2 ½" wide x 1" deep, and 0.2" down from the inside top middle of the wall mounting bracket) from the backing material (i.e., wallboard).

This opening should be large enough to accommodate the ICM cable plug, and be positioned immediately behind the connector on the ICM when the faceplate and adapter sleeve is mounted on the bracket.

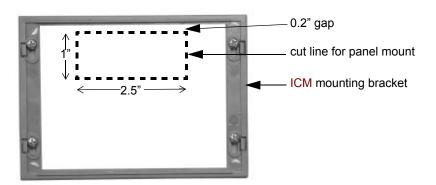


Figure 1-11 ICM Mounting Bracket on Wall, Panel Mount Cut Line

Install the ICM cable in the wall

To install the ICM cable in the wall:

◆ Follow the instructions for installing the ICM cable in the wall on page 1–8, exactly as stated.

Attach the ICM to the wall and connect to the inverter

To attach the ICM to the wall:

- 1. Snap the ICM faceplate onto the adapter sleeve provided with your ICM kit.
- 1. Plug the DB25 connector into the DB25 Port on the back of the ICM display panel. Secure with the two screws provided.

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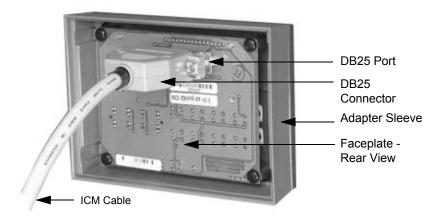


Figure 1-12 ICM and Adapter Sleeve Attached to the Faceplate for Surface Mounting

2. Snap the adapter sleeve onto the mounting bracket (on the wall).

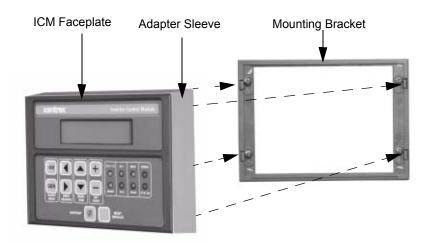


Figure 1-13 Mounting the ICM with Adapter Sleeve to the Mounting Bracket

3. Plug the other end of the communications cable into the Remote Port on the AC side of the inverter (Figure 1-10 on page 1-10) and secure with the two screws provided.

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Warranty and Product Information

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 Inverter Control Module. This warranty lasts for a Warranty Period of two (2) years from the date of purchase at point of sale to you, the original end user customer.

This Limited Warranty is transferable to subsequent owners but only for the unexpired portion of the Warranty Period.

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.

How do you get service? If your product requires troubleshooting or warranty service, contact your merchant. If you are unable to contact your merchant, or the merchant is unable to provide service, contact Xantrex directly at:

Phone: 1-800-446-6180 (toll free)

1-360-435-8826 (direct)

Fax: 1-360-925-5143

Email: CustomerService@xantrex.com

Direct returns may be performed according to the Xantrex Return Material Authorization Policy described in your product manual. For some products, Xantrex maintains a network of regional Authorized Service Centers. Call Xantrex or check our website to see if your product can be repaired at one of these facilities.

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.

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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;
- 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.

IN NO EVENT WILL XANTREX BE LIABLE FOR ANY SPECIAL, DIRECT, INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSSES, COSTS OR EXPENSES HOWEVER ARISING WHETHER IN CONTRACT OR TORT INCLUDING WITHOUT RESTRICTION ANY ECONOMIC LOSSES OF ANY KIND, ANY LOSS OR DAMAGE TO PROPERTY, ANY 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.

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Warning: Limitations On Use

Please refer to your product manual for limitations on uses of the product.

SPECIFICALLY, PLEASE NOTE THAT THE INVERTER CONTROL MODULE SHOULD NOT BE USED IN CONNECTION WITH LIFE SUPPORT SYSTEMS OR OTHER MEDICAL EQUIPMENT OR DEVICES. WITHOUT LIMITING THE GENERALITY OF THE FOREGOING, XANTREX MAKES NO REPRESENTATIONS OR WARRANTIES REGARDING THE USE OF THE XANTREX INVERTER CONTROL MODULE IN CONNECTION WITH LIFE SUPPORT SYSTEMS OR OTHER MEDICAL EOUIPMENT OR DEVICES.

Please note that the Inverter Control Module is not intended for use as an uninterruptible power supply and Xantrex makes no warranty or representation in connection with any use of the product for such purposes.

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

Record these details in on page WA-4.

Return Procedure

- 1. Package the unit safely, preferably using the original box and packing materials. Please ensure that your product is shipped fully insured in the original packaging or equivalent. This warranty will not apply where the product is damaged due to improper packaging.
- 2. Include the following:
 - The RMA number supplied by Xantrex Technology, Inc. clearly marked on the outside of the box.
 - A return address where the unit can be shipped. Post office boxes are not acceptable.
 - A contact telephone number where you can be reached during work hours.
 - A brief description of the problem.
- 3. Ship the unit prepaid to the address provided by your Xantrex customer service representative.

If you are returning a product from outside of the USA or Canada In addition to the above, you MUST include return freight funds and are fully responsible for all documents, duties, tariffs, and deposits.

If you are returning a product to a Xantrex Authorized Service Center (ASC) A Xantrex return material authorization (RMA) number is not required. However, you must contact the ASC prior to returning the product or presenting the unit to verify any return procedures that may apply to that particular facility.

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Out of Warranty Service

If the warranty period for your Inverter Control Module 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 inverter may be serviced or replaced for a flat fee.

To return your Inverter Control Module for out of warranty service, contact Xantrex Customer Service for a Return Material Authorization (RMA) number and follow the other steps outlined in "Return Procedure" on page WA–3.

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.

Information About Your System

As soon as yo	ou open your	Inverter C	ontrol Modu	ıle package.	record the	following	information	and b	e sure to
keep your pro	of of purcha	ıse.		1 0		Č			

Purchased From	
Purchase Date	

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