

AIRPAX

DIMENSIONS

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OWNERS MANUAL

JANUARY 2007

AIRPAX DIMENSIONS, INC.

DC to AC Power Inverters

OWNERS MANUAL for Model:

ADI-48/1200

ADI-48/1500

INCLUDING OPTIONS:

T - Transfer Switch

**OWNERS MANUAL
FOR AIRPAX DIMENSIONS
INVERTERS**

Model ADI-48/1200
Model ADI-48/1500

Including Option T
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1. GENERAL

1.01 Dimensions inverters have been designed and manufactured for many user applications and long life. They utilize patented construction methods and high technology electronic parts and circuitry.

1.02 CAUTION: Inverters produce hazardous voltages. To avoid risk of harm or fire the unit must be properly installed. There are no user serviceable parts inside. Do not remove the cover.

CAUTION: The inverter should not be mounted in a location that may be exposed to rain or spray.

CAUTION: The inverter should not be installed in a zero clearance enclosure.

CAUTION: Damage to the inverter will occur if correct polarity is not observed when installing the DC input cables.

CAUTION: Damage to the inverter will occur if an external AC power source is applied to

the inverter's AC output or its hardwire output.
CAUTION: The inverter contains a circuit breaker and capacitor that may produce a spark. Do not mount in a confined battery or gas compartment.

CAUTION: Working in the vicinity of lead-acid batteries is dangerous. Batteries generate explosive gases during operation. There is a risk of acid exposure. There is also a risk of high current discharge from shorting the battery that can cause fire and explosion.

CAUTION: Be sure both the inverter and if used, the external AC input circuit breaker or fuse are turned "OFF" during installation.

2. DESCRIPTION

2.01 The inverter converts 48 VDC to regulated 120 VAC, 60 HZ, having a quasi-sine wave form.

2.02 The inverter has a controlled frequency at 60 HZ \pm 0.6Hz.

2.03 The inverter has internal protection against output short circuit, output overload and high temperature conditions. Also, there is a thermally controlled cooling fan.

2.04 The inverter is designed to operate almost any 120 VAC, 60 HZ, single phase equipment within its power ratings, unless the equipment is specifically designed for a pure sine waveform.

3. INSTALLATION

3.01 The following instructions should be thoroughly read and understood before installation.

3.02 CAUTION: Inverters produce hazardous voltages. To avoid risk of harm or fire the unit must be properly installed.

CAUTION: Damage to the inverter will occur if correct polarity is not observed when install-

ing the DC input cables.

CAUTION: Damage to the inverter will occur if an external AC power source is applied to the inverter's AC outlet or its hardwire output.

CAUTION: Be sure both the inverter and the external AC input circuit breaker or fuse (if needed) are turned "OFF" during installation.

NOTE: All wiring must follow the National Electric Code, Provincial or other codes in effect at the time of installation, regardless of suggestions in this manual. All wires should be copper conductors.

3.03 Mounting

3.03.1 Locate a suitable, secure flat mounting surface as close to the battery as possible without being in the same air tight compartment. The maximum recommended distance between the mounting location and the battery is 30 feet.

3.03.2 The location should have adequate ventilation and clearance to maintain room temperature while the unit is operating. At least 1/2 inch of clearance is required on all sides.

3.03.3 Secure the unit with #8 or larger screws or bolts in the mounting slots on the flanges of the chassis.

3.04 Chassis Bonding Lug - FIG. 1

3.04.1 Connect a #8 gauge or greater copper wire between the bonding lug on the inverter and the earth grounding system or the vehicle chassis.

3.05 Battery Wiring - FIG. 1

3.05.1 CAUTION: Make sure that hydrogen gas does not accumulate near the battery by keeping the area well ventilated. A spark may result when connecting the battery wiring due to an initial charging of the internal input capacitor.

3.05.2 Use stranded copper wire between

the battery and inverter as indicated. A fuse must be installed between the battery and the inverter. U.L. requires that the fuse be within 18 inches of the battery.

DC Input Wire Lengths (maximum) and Fusing Guide

Model	Distance(feet)			Fuse
	1-10	11-20	21-30	
48/1200	6 ga	4 ga	2 ga	80
48/1500	6 ga	4 ga	2 ga	80

3.05.3 NOTE: Using smaller input cable or longer length will greatly degrade the inverter peak performance.

IMPORTANT NOTE FOR VEHICLE INSTALLATION: Do not use the vehicle chassis as the negative return in place of a return cable. Use the same size cable as the positive connection & run directly to the battery.

3.05.4 Install the wires at the battery, inverter and then fuse holder. Make sure that clean, tight connections are made. Use care not to touch the positive and negative wires together. This will result in a violent spark and could result in exploding batteries and fire.

3.05.5 The battery input terminals are located in the inverter wiring compartment. A spark may result when connecting the battery wire, due to an initial charging of the internal input capacitor.

3.05.6 CAUTION: Damage to the inverter will occur if correct polarity is not observed. This damage is *NOT* covered by warranty.

3.06 Remote Switch for Inverter Operation Fig. 1

3.06.1 All material used for the remote

switch should be U.L. listed and installed per low voltage, Class 2, wiring code.

3.06.2 A switch may be connected to the violet wire marked "Remote Switch Hookup" in the wiring compartment. You must first remove this violet wire from the battery positive input terminal; then connect the violet wire to the load terminal of the remote switch. Fused, positive battery voltage is connected to the line terminal of the switch. The cable clamp strain relief should be used to secure the field wires.

3.06.3 The switch should be mounted at a convenient location in a listed outlet box with an approved strain relief.

3.06.4 NOTE: A remote switch, if installed, will operate **only if** the local On/Off switch on the face of the inverter is turned "On".

3.07 120 VAC Output

3.07.1 CAUTION: Do not connect an other source of AC power directly to the output of the inverter. This will result in damage to the inverter that is not covered under warranty!

3.07.2 The 120 VAC output of the inverter is provided at the GFCI receptacle outlet on the inverter.

3.07.3 The output is also presented behind the wiring compartment panel for direct hardwire wire leads. The black is hot, the white wire is neutral and the green wire is ground. The cable clamp strain relief should be used to secure the field wires.

3.07.4 The hardwire A.C. output is not ground fault circuit interrupt, (GFCI) protected GFCI outlets should be installed at all appropriate locations per NEC 551. The GFCI outlet should be Hubbell, Model GFR5352XX (20A) or GFR5252XX (15A).

3.07.5 The remote AC outlets should be mounted at a convenient location in a listed outlet box with approved strain relief.

3.10 120 VAC Input (T option)

3.10.1 120 VAC, 60 Hz power from the electric utility or generator can be connected to the AC Input wire leads provided in the hardwire compartment. The black wire is hot, the white wire is neutral, and the green wire is ground. The cable clamp strain relief should be used to secure the field wires.

3.10.2 The input circuit should have 15 Amp circuit protection from the distribution panel.

3.10.3 If the Transfer option is available, when external 120 VAC is supplied, the internal transfer switch is automatically activated, the inverter is turned "Off", and the inverter's loads will operate from the external AC input.

4. START UP/OPERATION

4.01 To operate the inverter turn the switch to "On". Make sure that the output breaker is reset. If the remote switch is used, the inverter is turned "On" or "Off" by the remote switch.

4.02 Turn the switch to "Off" when the inverter is not in use.

5. CUSTOMER SERVICE/TROUBLESHOOTING

5.01 Dimensions offers free phone consultation (no collect calls) concerning installation or troubleshooting. Call the Customer Service Department at (651) 653-7000.

5.02 If the inverter fails to operate, use the following troubleshooting procedure:

5.02.1 Connect a 100 watt light bulb to the inverter output.

5.02.2 Make sure the inverter is turned "On", the output circuit breaker is reset and

that the voltage is at least 48 VDC at the DC input terminals. If not, check DC wiring connections and the line fuse.

5.02.3 Check the connection to the remote switch, if used. +48 VDC **must** be present at the violet wire for the unit to operate. If not, troubleshoot the +48 VDC remote switch circuit.

5.02.4 Observe the fault indicating lights on the front of the inverter or remote status panel.

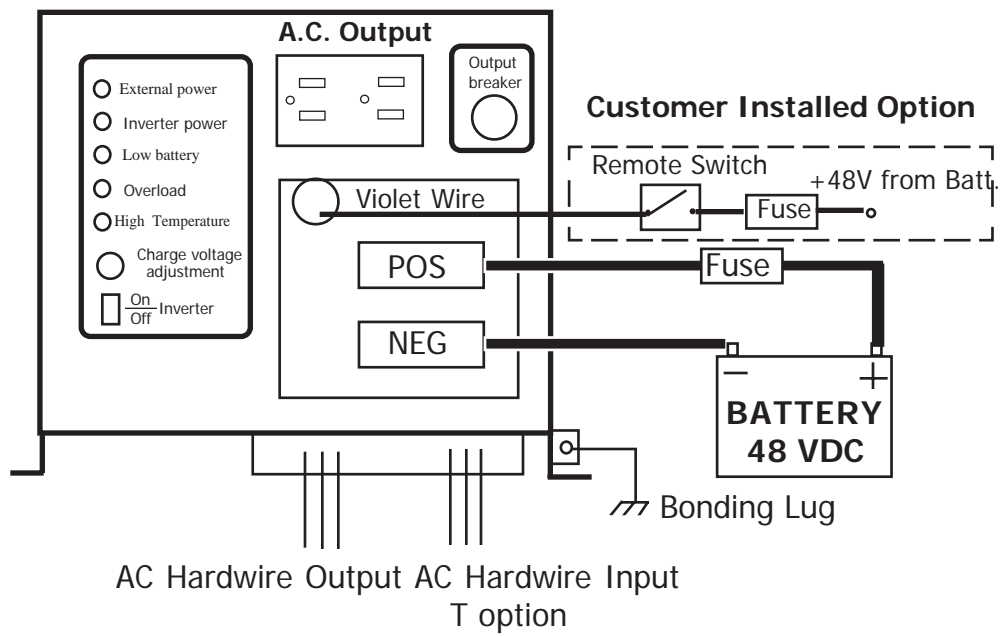
a) The Low input voltage light indicates a low battery condition. Switch the inverter "Off" for 5 seconds, then "On" again. The light coming on again indicates a fault in the battery wiring, battery capacity and voltage, or the fuse.

b) The Overload light indicates an output wiring short circuit or a load that is too large for the power rating of the inverter. Switch the inverter "Off", remove the short circuit or excessive load from the output, then switch the inverter back "On".

c) The High temperature light indicates the inverter has overheated. The unit will automatically turn back on when it has cooled to 40°C. Verify that the inverter is not in an enclosed compartment.

5.03 If the above steps are completed and the inverter still will not operate satisfactorily call Airpax Dimensions, Inc. for a return authorization number.

FRONT VIEW



Installation Figure 1

Limited Warranty Terms & Conditions

SHIPPING TERMS

F.O.B. St. Paul Minnesota. Freight prepaid and billed, subject to prior credit approval.

MINIMUM ORDER

\$50.00 Net Price

LOSS OR DAMAGE

Loss or damage in transit are the responsibility of the carrier. Any claim should be filed with the delivering transport company. Invoice, Bill of Lading and Delivery receipt with damage noted therein must accompany any claims for freight damage. Claims for shortage and lost shipments must be made in writing to Airpax Dimensions, St. Paul, MN within 10 days of date of shipment. Claims not reported within this time frame will not be honored.

PRICES

Prices are subject to change without notice. All orders are subject to acceptance at the factory. We reserve the right to invoice prices in effect at time of shipment.

TERMS

Net 30 days with approved credit, credit card or C.O.D.

RETURN GOODS POLICY

o No returned materials will be accepted without an accompanying Returned Materials Authorization Number (RMA) from the factory.

o Credit will be issued for returned goods to the original purchaser within 60 days of purchase, provided the inverter is returned to Dimensions unused and not mounted. The amount of credit will be issued at Dimensions discretion based on the condition of the product.

o Customer must be in good standing with Dimensions.

o Inverters that are discontinued, high-voltage (over 24vdc), special-order or used are excluded and will not be eligible for credit. Non-inverter items such as cable assemblies, fuses and fuse holders, will not be eligible for credit

o Support components supplied by Dimensions vendors will be covered under that manufacturer's credit return policy.

o Customer pays return freight.

PLEASE SHIP AUTHORIZED RETURNS TO: Airpax Dimensions, Inc. / 4467 White Bear Parkway / St. Paul, MN 55110
Return Freight Prepaid

LIMITED WARRANTY

Airpax Dimensions, Inc. extends the following warranty to the original purchaser of those goods subject to the qualifications indicated.

Dimensions warrants to the original purchaser for use that the goods or any component thereof manufactured by Dimensions will be free from defects in workmanship for a period of 1 year from the date of purchase, provided such goods are installed, maintained and used in accordance with Dimensions and the original manufacturer's written instructions.

Components not manufactured by Dimensions, but used within the assembly provided by Dimensions, are subject to the warranty period as specified by the individual manufacturer of said component, provided such goods are installed, maintained and used in accordance with Dimensions and the manufacturer's written instructions.

Dimensions sole liability and the Purchaser's sole remedy for a failure of goods under this limited warranty and for any and all claims arising out of the purchase and use of the goods, shall be limited to the repair or replacement of the goods that do not conform to this warranty.

To obtain repair or replacement service under the limited warranty, the purchaser must contact the factory for a Return Material Authorization (RMA). Once obtained, send the Return Material Authorization Number along with the defective part or goods to: Airpax Dimensions, Inc., 4467 White Bear Parkway, St. Paul, MN 55110, freight prepaid.

THERE ARE NO EXPRESS WARRANTIES COVERING THESE GOODS OTHER THAN AS SET FORTH ABOVE. THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED IN DURATION TO ONE YEAR FROM DATE OF PURCHASE.

DIMENSIONS ASSUMES NO LIABILITY IN CONNECTION WITH THE INSTALLATION OR USE OF THE PRODUCT, EXCEPT AS STATED IN THIS LIMITED WARRANTY. DIMENSIONS WILL IN NO EVENT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

WARNING: LIMITATIONS ON USE

Dimensions products are not intended for use in connection with Life Support Systems and for Avionic use. Dimensions makes no warranty or representation in connection with their products for such uses.