

# **AIRPAX** **DIMENSIONS**

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**121718B**

**OWNERS MANUAL**

**JANUARY 2007**

ISO 9001:2000 Certified Company



## **Airpax Dimensions, Inc.** **DC to AC Power Inverters**

OWNERS MANUAL for Model:

**12Z8NV**

**24Z8NV**

**48Z8NV**

Form 121718

# OWNERS MANUAL FOR AIRPAX DIMENSIONS

## INVERTERS

Model 12Z8NV

Model 24Z8NV

Model 48Z8NV

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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 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 a 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 explo-

sive 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 the inverter's circuit breaker or fuse are turned "OFF" during installation.

## 2. DESCRIPTION

**2.01** The inverter converts 12VDC, 24VDC or 48VDC depending on inverter model to a 120VAC, 60 HZ, having a pure sine wave form signal output.

**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.

**2.04** The inverter is designed to operate any 120 VAC, 60 HZ, single phase appliance, equipment or tool within its power ratings.

**2.05** The inverter has a ventless cover to protect the inside electronics from the elements and is designed to be used on scissor lift applications.

**2.06** The inverter is GFCI protected but does not have standard GFCI outlets. The 120VAC, 60Hz output is supplied by a female receptacle cord attached to the unit.

**2.07** The inverter does not have a "On"/"Off" switch. The unit must be controlled by a remote switch, a violet wire is attached to the unit for this purpose.

### Inverter Ratings

Inverter Model	Input		Output	
	(VDC)	(ADC)	(VAC)	(Watts)
12Z8NV	12.6	Up to 80	120	800
24Z8NV	25.2	Up to 40	120	800
48Z8NV	50.4	Up to 20	120	800

### 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 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 receptacle cord.

**CAUTION:** Be sure the inverter's 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 20 feet. See DC Input Cable Lengths chart.

**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 Cable Lengths (maximum) and Fusing Guide

	<u>Distance(feet)</u>	
<u>Model</u>	<u>1 to 20</u>	<u>Fuse</u>
12Z8NV	6 Ga	150A
24Z8NV	8 Ga	100A
48Z8NV	8 Ga	100A

**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 wire as the positive cable and run directly to the battery.

**3.05.4** Install the cables 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 attached to the unit : Red (+) and Black (-) cable, having 5/16" ring terminals. 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. The On/Off switch and in-line fuse to be purchased locally at an electrical supply outlet.

**3.06.2** A 3 Amp rated remote switch must be connected to the violet wire marked "Remote On/Off" coming out at front of the inverter. Connect the violet wire to the load side of the remote switch. The line side of the switch must be connected to the DC power source with a 3 Amp fuse within 18" of the source. 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 approved strain relief. The in-line fuse to be mounted on appropriate fuse holder.

**3.06.4 NOTE:** A remote switch, must be installed to operate the inverter. You may use several switches or relays in parallel in lieu of one remote switch.

### **3.07 120 VAC Output**

**3.07.1 CAUTION:** Do not connect another 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 is provided at the GFCI protected female receptacle cord attached to the inverter.

## **4. START UP / OPERATION**

**4.01** To operate the inverter turn the remote switch to "On". Make sure that the output breaker is reset.

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

## **5. TROUBLESHOOTING**

**5.01** Airpax Dimensions Inc. offers free phone consultation concerning installation or troubleshooting. Call the Customer Service Department at: 1-800-553-6418 or 1-651-653-7000  
Fax: 651-653-7600;  
e-mail: [inverterinfo@Airpax.net](mailto:inverterinfo@Airpax.net)

**5.02** If the inverter fails to operate correctly, 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 12VDC, 24VDC or 48 VDC (depending on inverter model) 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, +12VDC, +24VDC or +48VDC **must** be present at the violet wire for the unit to operate. If not, check any in-line fuses in the +12VDC, +24 or +48 VDC remote switch circuit.

**5.02.4** Observe the fault indicating lights on the front of the inverter.

a) The Low battery 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".

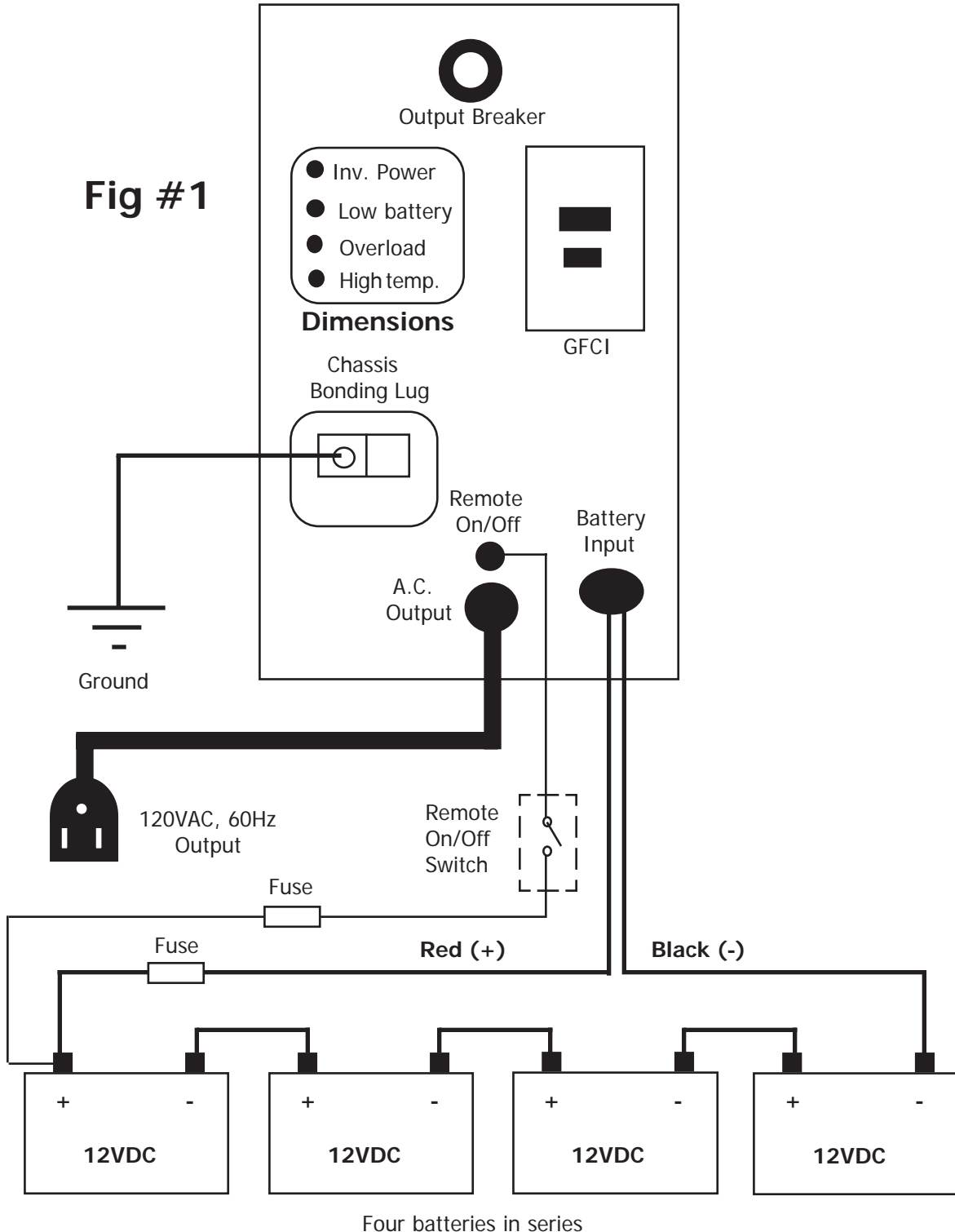
c) The High temp. light indicates the inverter has overheated. The unit will automatically turn back on when it has cooled to 40°C (104°F).

**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

## WIRING DIAGRAM FOR MODEL 48Z8NV

**Note 1:** Remote switch to be connected to +12VDC, +24VDC or +48VDC depending on inverter model.



# 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

- No returned materials will be accepted without an accompanying Returned Materials Authorization Number (RMA) from the factory.
- 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.
- Customer must be in good standing with Dimensions.
- Inverters that are discontinued, 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
- Support components supplied by Dimensions vendors will be covered under that manufacturer's credit return policy.
- 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 from the date of purchase for the period listed on the product label, 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. The return of the purchase price in cash is at the sole discretion of Dimensions.

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.

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