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**OWNERS MANUAL**

**JULY 2007**

ISO 9001:2008 Certified Company

# Dimensions DC to AC Power Inverters

OWNERS MANUAL for Models:

## MIL-24DM50DN

Including Option: E

Form 122114

**OWNERS MANUAL  
FOR DIMENSIONS  
INVERTERS**

**Model MIL-24DM50DN  
Including Option: E**

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**1. GENERAL**

**1.01** Dimensions inverters have been designed and manufactured for many user applications and long life. They utilize engineered 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 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:** Before submerging inverter, remove DC and AC power connections. See section 5 page 3.

**2. DESCRIPTION**

<b>Inverter Rating</b>				
<u>Inverter</u>	<u>Input</u>	<u>Output</u>		
<u>Model</u>	(VDC)	(ADC)	(VAC, RMS)	(Watts)
24DM50DN	28	Up to 250	120/240	5,000

**2.01** The inverter converts 24 VDC to 120/240 VAC, 60 HZ, having a pure-sine wave form.

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

**2.03** The inverter is designed to operate any 120/240 VAC, 60 HZ single phase appliance, equipment or tool within its power ratings .

**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 outlet or its hardwire output.

**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 horizontal 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 10 feet.

**3.03.2** The location should provide adequate ventilation and clearance to maintain room temperature during operation. At least 1/2 inch of clearance is required on all sides.

**3.03.3** Secure the unit with 3/8 inch screws or bolts in the mounting slots on the flanges of the chassis.

### 3.04 Battery Wiring - FIG. 1

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

**3.04.2** Use stranded copper wire between the battery and inverter as indicated. A line 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 for inverter model  
MIL-24DM50DN**

<u>Distance:</u>	1' to 10'
<u>Wire Gauge:</u>	3/0
<u>Fuse:</u>	600A

**3.04.3 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 and run directly to the battery.

**3.04.4** The battery input terminals are located in the DC input NATO connector plug. A mounting spark may result when connecting the battery wire, due to an initial charging of the internal input

capacitors.

**3.04.5 CAUTION:** Connecting the inverter incorrectly to the battery will cause damage that is not covered under warranty.

### 3.05 120/240 VAC Dual Output (Optional Distribution Box)

**3.05.1 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!

**3.05.2** AC power is supplied throughout the distribution box as follows:

**3.05.3** 120/240 VAC 60Hz output is provided with a twistlock outlet (Leviton L14-30CR, 30A 125/250V) which is located at the left of the distribution box. Open the round cover to access the outlet.

**3.05.3** The 120VAC 60 Hz output is provided with two outlets (Leviton 53CM-62 yellow) located at the right side of the distribution box. Open the square cover to access the outlets.

## 4. START UP / OPERATION

**4.01** To operate the inverter, turn the switch to "ON". Assure that the output breakers are reset.

## 5. FORDING, OPTION "E"

**5.01** Turn the inverter **OFF**

**5.02** Before submerging the inverter, remove DC and AC power connections.

**5.03** After removing DC and AC power connections turn the power switch to the **ON** position for a period of 5 seconds to bleed residual power from internal capacitors.

**5.04** Turn power switch to the **OFF** position before submerging.

**5.05** Allow inverter 15 minutes to drain after submerging before connecting DC and AC power connections.

**5.06** Power switch **MUST** be in the off position before re-connecting DC and AC power

connections

## **5. TROUBLESHOOTING**

**5.01** Sensata offers free phone consultation concerning installation or troubleshooting.

Call the Customer Service Department at:

1-800-553-6418 or 651-653-7000

fax: 1-651-653-7600

e-mail: [inverterinfo@sensata.com](mailto:inverterinfo@sensata.com)

**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 120VAC, 60Hz output.

**5.02.2** Make sure that the inverter is turned "On", and the circuit breakers are reset.

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

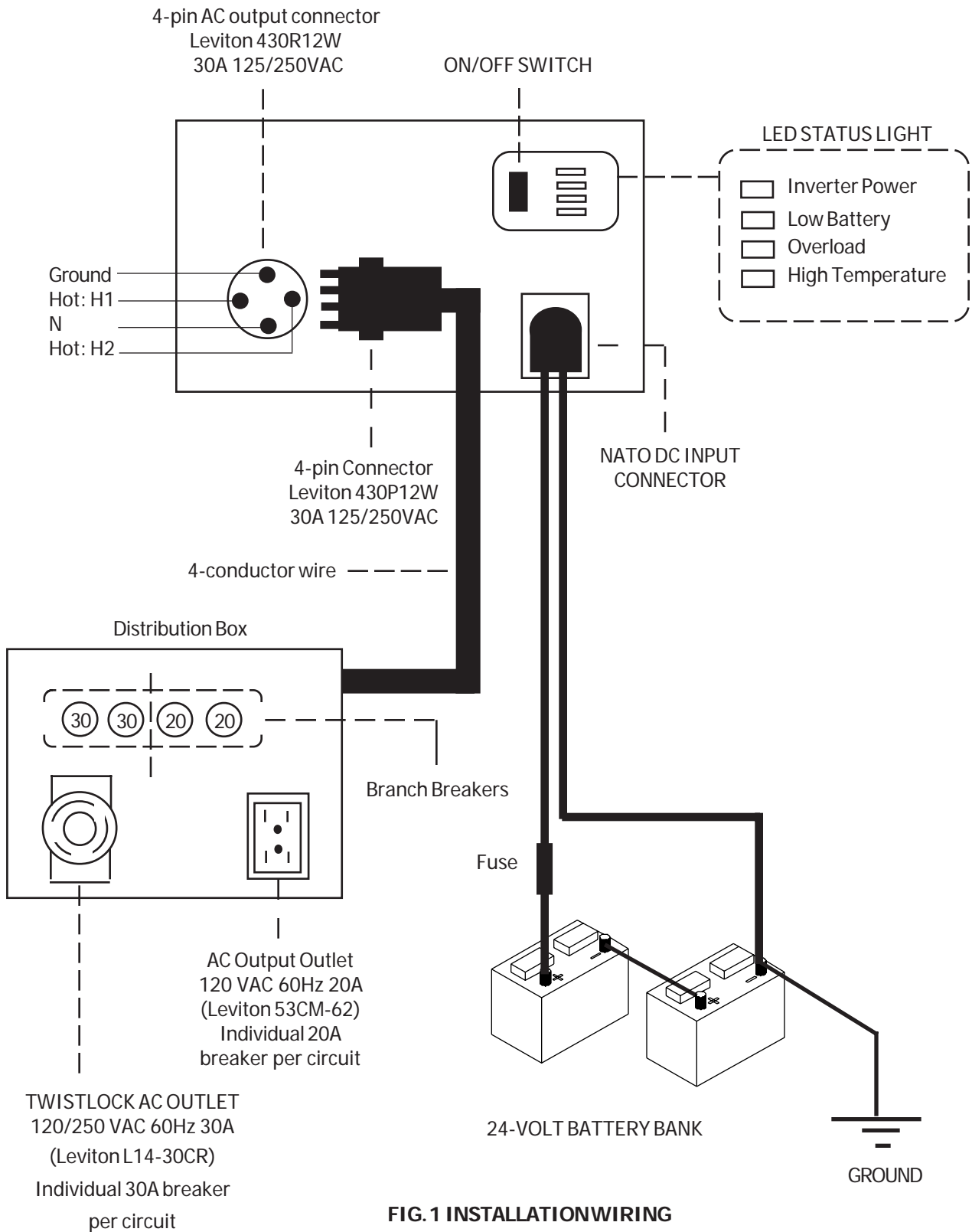
a) The Low input voltage light indicates a low battery condition. Switch the inverter "Off" for 5 seconds, then "On" again. The light coming on again indicates a fault in the battery wiring, battery capacity and voltage or the line fuse.

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. Verify that the inverter is not in a closed compartment and that the fan is not blocked.

**5.03** Call Sensata Technologies for technical assistance and/or a return authorization number if the above steps are completed and the inverter still will not operate satisfactorily.

**WARNING: CONNECTING THE BATTERY WITH THE WRONG POLARITY TO THE INVERTER WILL CAUSE DAMAGE THAT IS NOT COVERED UNDER THE WARRANTY.**



**FIG. 1 INSTALLATION WIRING**

## 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 Sensata Technologies, 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 Sensata unused and not mounted. The amount of credit will be issued at Sensata's discretion based on the condition of the product.

o Customer must be in good standing with Sensata.

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 Sensata vendors will be covered under that manufacturer's credit return policy.

o Customer pays return freight.

**PLEASE SHIP AUTHORIZED RETURNS TO:** Sensata Technologies/ 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.

Sensata warrants to the original purchaser for use that the goods or any component thereof manufactured by Sensata 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 Sensata and the original manufacturer's written instructions.

Components not manufactured by Sensata, but used within the assembly provided by Sensata, 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 Sensata and the manufacturer's written instructions.

Sensata's 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: Sensata Technologies, 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.

SENSATA ASSUMES NO LIABILITY IN CONNECTION WITH THE INSTALLATION OR USE OF THE PRODUCT, EXCEPT AS STATED IN THIS LIMITED WARRANTY. SENSATA 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. Sensata makes no warranty or representation in connection with their products for such uses.