Sensata Technologies

Manufacturer of Dimensions™ Inverters
Web: www.Magnum-Dimensions.com

120015F

OWNERS MANUAL ***January 2016***

ISO 9001:2000 Certified Company

MAGNUM DIMENSIONS

DC to AC Power Inverters

Models

24/3000H-3PH
24/4500H-3PH
24/6000H-3PH

Including Options:
R6: Remote switch 24Vdc

Form 120015

OWNERS MANUAL
FOR SENSATA TECHNOLOGIES INVERTER MODELS

24/3000H-3PH
24/4500H-3PH
24/6000H-3PH

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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 The inverter is powered by a 24 volt auxilary battery. The remote On/Off control circuitry requires + 12 volts to operate.

1.03 *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 it's 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 battries 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 the inverter is turned "OFF" during installation.

2. DESCRIPTION

2.01 The inverters converts 24VDC to 220 VAC, 3 phase; or 220 VAC single phase; or 120 VAC, single phase; all at 60 HZ, having a quasi-sine wave form.

2.02 The inverters have internal protection against output short circuit, output overload and high temperature conditions. Also, there are thermally controlled cooling fans.

2.03 The inverters are designed to operate almost any 60 HZ appliance, equipment or tool within their voltage, phase and power ratings that does not require 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 voltage, and to avoid risk of harm or fire the unit must be properly installed.

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: When working near batteries, safety goggles should be worn.

CAUTION: Be sure the inverter is 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 24 volt auxilary batteries 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 while the unit is operating. At least 1/2 inch of clearance is required on all sides.

3.03.3 Secure the unit with 1/4" screws or bolts in the mounting holes on the legs of the unit.

3.04 Chassis Bonding Lug - FIG.1

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

3.05 DC Wiring - FIG. 1

3.05.1 *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 initial charging of the internal input capacitor.

3.05.2 Use stranded copper cable between the battery and the inverter as indicated. Keep the distance to less than 10 feet. A line fuse must be installed between the battery and the inverter. UL requires that the fuse be within 18 inches of the battery.

Cable gauge	Line fuse	
24/3000H-3PH	2/0	400 amp
24/4500H-3PH	3/0	500 amp
24/6000H-3PH	4/0	600 amp

3.05.3 Use only an approved fuse holder with a U.L. listed fuse as indicated above.

3.05.4 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.

3.05.5 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 cables together. A violent spark will result and could result in exploding batteries and fire.

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

3.05.7 *CAUTION:* Connecting the inverter to the wrong polarity of the battery will cause damage that is not covered under warranty.

3.06 Remote ON/OFF Switch - FIG. 1

NOTE: The inverter will not switch on unless the violet wire has +12 VDC applied to it.

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 remote switch hookup can not provide additional current to operate a indicating lamp.

3.06.2 The remote switch should be single pole and have at. least a 5 amp rating, such as Leviton No. 1330-2. The wire used should be at least 18 gauge.

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

3.06.4 The remote switch should be connected to the violet wire marked "Remote Switch Hookup" in the wiring compartment. Positive (+)12 battery voltage must be connected to the other side of the switch. Cable clamp strain relief should be used to secure the field wires.

3.06.5 Units with a model designation ending in "R6" have the remote On/Off switch circuit modified to accept +24 VDC instead of +12 VDC. The remote switch must be connected to the violet wire marked "Remote Switch Hookup".

3.07 220Y/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 A.C. output is presented at the A.C. wiring compartment. The 3 phase outputs are labeled "L1", "L2", "L3". There is also an A.C. neutral labeled "N" and a chassis ground labeled "G".

3.07.3 To obtain 220 VAC, 3 phase output, a connection must be made to L1,L2, and L3.

3.07.4 To obtain 220 VAC, single phase output, a connection should be made to any two of the hot leads, as L1 and L2, or L1 and L3, or L2 and L3.

3.07.5 To obtain 120 VAC, single phase output a connection. should be made to any one hot lead and to AC neutral "N"; as L1 and N, or L2 and N, or L3 and N.

3.07.6 Remote AC outlets should be mounted at a convenient location in a listed outlet box with approved strain relief, if used.

4. OPERATION

4.01 To operate the inverter, switch the output circuit breaker switch to "ON". Also switch "ON" the inverter on/off switch and the remote on/off switch (if used).

5. TROUBLESHOOTING

5.01 Sensata offers free phone consultation concerning installation or troubleshooting. Call the Customer Service Department at 800-553-6418 or 651-653-7000;
fax: 651-653-7600.
e-mail: inverterinfo@sensata.com

NOTE: Since the inverter has a quasi-sine waveform, a TRUE RMS volt meter is required for an accuarte reading. Other volt meters that use averaging circuitry will give incorrect readings.

5.02 If the inverter fails to operate, use the following trouble-shooting procedure.

5.02.1 Connect a 100 watt light bulb to each 120 VAC phase and disconnect all other output wiring.

5.02.2 Make sure the inverter is "ON" and the output circuit breaker is also "ON".

5.03.3 Observe the fault indicating lights on the front of the inverter.

a) If the low input voltage light is lit, turn inverter "Off" for 5 seconds, then turn "On" again. If the light again turns on, check wiring, DC source voltage, battery condition and line fuse.

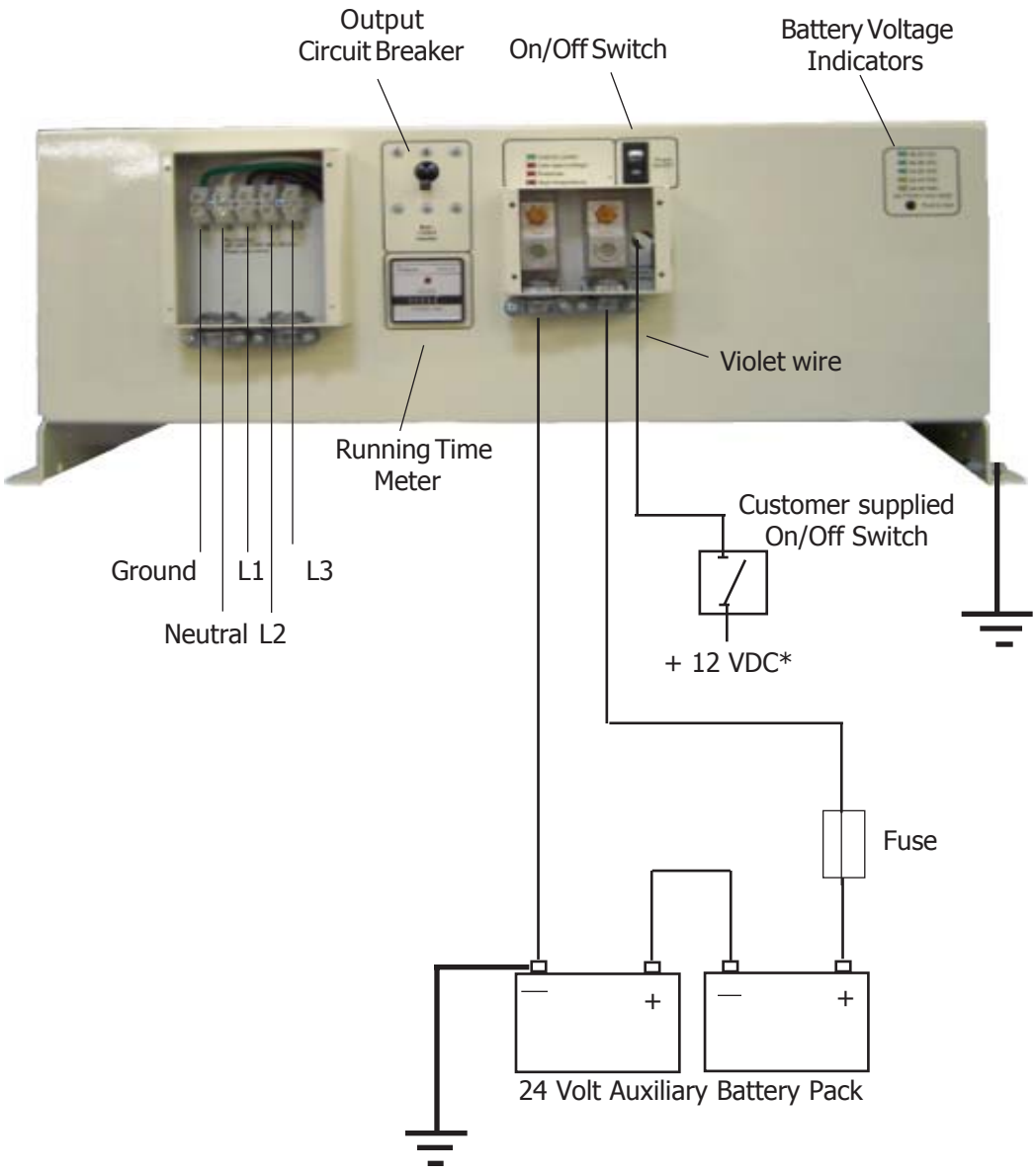
b) If the overload light is lit, check output wiring for short circuit. Otherwise, the load is too large for the power rating of the inverter.

c) If the high temperature light is lit, the inverter must be left cool to 40^{o} C (104^{o} F). Check to see that the inverter is not in a closed compartment and that the fans are not blocked.

5.03.4 If the above steps are completed and the inverter still will not operate satisfactorily call Sensata for a return authorization number.

FIGURE 1

3 PHASE INVERTER



***** +24 V for units with a model designation ending in "R24".