



Wilmore[®]
ELECTRONICS CO., INC.

USER MANUAL

Model 1749-74
DC-to-AC Inverters

Model 1749-74 500VA Portable DC-to-AC Inverter



Wilmore Electronics Company, INC.
P.O. Box 1329, Hillsborough, NC 27278

Telephone 919.732.9351 | Fax 919.732.9359
www.wilmoreelectronics.com

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I. General Description

The Model 1749-74 dc-to-ac inverter provides a 110-Vac, frequency-stable 60-Hz sine-wave output from 74-Vdc locomotive battery systems. Maximum rated output power is 500 volt-amperes (continuous-duty rating at up to 65°C ambient temperature with free-air convection cooling). The dc input and the ac output are isolated from the chassis and from each other.

This inverter is electronically protected against output overloads and short circuits. Recovery to normal inverter operation is automatic once the fault is removed.

Protection against accidental reversal of the dc input voltage polarity during installation is provided by a shunt diode working in conjunction with the front-panel circuit breaker, which is in series with the positive (+) input line. The inverter will operate if the dc input voltage is significantly below the minimum specified voltage of 50Vdc, but at a reduced output voltage. If the steady-state input voltage significantly exceeds the maximum specified voltage of 90Vdc, the inverter will enter a “wait” state (no output) until the input voltage returns to normal.

II. Installation and Operation

Connection and operation of the Model 1749-74 dc-to-ac inverter is almost entirely self-explanatory from the front-panel markings on the unit. Before connecting or disconnecting dc input wiring, turn the front-panel circuit breaker OFF and make certain that the dc source wiring is de-energized. Most ac output loads can ordinarily be plugged into the inverter (or unplugged from the inverter) while the inverter is operating.

All electrical connections to the inverter are located on the front panel. The **DC INPUT** power connections are made via a two-part (i.e. header and plug) connector. Input cabling can be connected to the inverter without separating the plug from the header. Alternately, the plug may be removed from the inverter by disengaging its mounting-flange screws, and the cabling can be connected to the plug prior to re-engaging it with the header on the inverter's rear panel (be sure to re-engage the mounting-flange screws as well). The positive and negative terminals on each power connector are clearly marked, and deliberate caution should be exercised to avoid polarity mistakes. To connect the power cables, simply strip $3/8'' - 1/2''$ from one end of each cable and insert into the appropriate connector wire clamp. Tighten the wire-clamp screw securely and, if using stranded wire, check to make sure that all wire strands have been captured by the wire clamp.

Note that this inverter is a constant-output-power device, i.e. with a constant output load, the dc input current and dc input voltage are inversely proportional. This means that the maximum input current is drawn at the minimum input voltage. At full load (500 volt-amperes) and minimum input voltage (50Vdc), the Model 1749-74 draws approximately 10.9 amperes.

The ac output connections are provided via two standard NEMA Type 5-15R receptacles, and the chassis ground screw is an 8-32 screw.

III. Maintenance Information

Other than preventing dust and debris accumulation on internal components and external surfaces of the inverter, no periodic maintenance should be required.

If a problem is encountered using the inverter, the user should first make sure that the problem is definitely within the inverter before returning it for repair. A visual check should be made of the input and output cabling, paying particular attention to the marked polarities. With the circuit breaker off, but with input voltage applied, measure the input voltage directly at the input terminals. Verify that the input voltage and polarity are as marked on the unit. Low output voltage may be the result of an output overload or an output cabling error.

A damaged or malfunctioning unit should be returned to Wilmore for repair. Multiple-component cascade failures in power conversion circuitry can greatly complicate trouble-shooting procedures, and factory technicians familiar with the circuitry can locate the problem quickly, explore adjacent circuitry for stressed or damaged components, and subject the inverter to a thorough retest.

Wilmore maintains a **Return Material Authorization** system in order to efficiently track your inbound shipment and expedite its repair and return to you. Before shipping material for repair to Wilmore, please call (919) 732-9351 or email info@wilmoreelectronics.com and request an **RMA Number** for your shipment. If possible, please provide the complete model number of the equipment, its serial number, and a brief description of the problem. Place this **RMA Number** on the outside of the package and ship prepaid to:

WILMORE ELECTRONICS CO., INC.
607 U.S. 70A East
P.O. Box 1329
Hillsborough, NC 27278

IV. Limited Warranty

Wilmore Electronics Company, Inc. warrants this product to be free from defects in material and workmanship for one (1) year after delivery to the original purchaser. During this period, a defective product for which an authorization to return the product has been given, shall be returned to Wilmore freight prepaid. The products will be repaired, replaced, or credit allowed only if the defect, after examination by Wilmore, is determined to be a defect in material or workmanship. If this returned product is determined by Wilmore to have suffered from user misuse or abuse or to have been opened or modified without written instructions from Wilmore, or if the date of receipt of a request for return authorization exceeds the 1-year warranty period, the warranty is null and void. In such cases, Wilmore will determine the cost of repair, quote this price to the purchaser, and continue as advised by the purchaser.

The sole obligation of Wilmore and the purchaser's exclusive remedy under this or any other warranty, expressed or implied, is the repair or replacement of a defective product as provided above, or the issuance of credit in an amount not to exceed the contract price for the product deemed to be defective. Wilmore makes no warranty of merchantability or fitness for a particular use. Wilmore shall not be responsible for incidental or consequential damage, whether or not foreseeable, caused by defects in this product. There are no other warranties which shall extend the description above.