

SERIES 1675 DC-to-DC Converters



This User's Information Manual is applicable for the following Models:

1675-12-12-15
1675-12-15-12
1675-12-24-8
1675-12-28-7
1675-12-48-4

1675-24-12-15
1675-24-24-8
1675-24-48-4

Table of Contents

- I. General Description**
- II. Mechanical Installation**
- III. Electrical Connections**
- IV. Operation and Maintenance**
- V. Repair and Return Information**
- VI. Warranty Statement**

I. General Description

Series 1675 dc-to-dc converters provide a regulated and filtered dc-output voltage from either 12-volt or 24-volt battery systems. This output is galvanically isolated from the source and chassis and, therefore, may be connected either as a positive or a negative output. This isolation is capable of passing a 2,000-Vdc stress test between the input and output, and between the input and the chassis. The input voltage range, the output voltage and current, and the efficiency for the various models are listed in Table 1.

Table 1

Model Number	Input Voltage Range (Vdc)	Output Voltage (Vdc)	Maximum ¹ Output Current (A _{dc})	Typical Efficiency (%)
1675-12-12-15	10-16	13.6	15	83
1675-12-15-12	10-16	15.0	12	85
1675-12-24-8	10-16	24.0	8	85
1675-12-28-7	10-16	28.5	7	85
1675-12-48-4	10-16	48.0	4	85
1675-24-12-15	20-30	13.6	15	87
1675-24-24-8	20-30	24.0	8	88
1675-24-48-4	20-30	48.0	4	88

¹Typical at full load and minimum input voltage

II. Mechanical Installation

The four slotted mounting holes on the converter's base flange were designed for use with #10 hardware. The mounting hole pattern is 5.5" x 7.2" on center.

Although this power converter is very efficient (83-88% typical), some power is lost to heat. The aluminum chassis of the converter is also its integral heatsink, and it is important to allow air to flow unrestricted around the converter if it is to be used at or near full rated power for extended periods of time.

III. Electrical Connections

The input/output terminal block is designed for use with #8 hardware. The input and output terminals are clearly marked beside the terminal block, and deliberate caution should be exercised to avoid wiring and polarity errors. Both the input and the output of the converter are dc-isolated from the chassis and from each other. Therefore, the input and output may each be connected as either a positive or negative voltage, independent of the other.

Warning: This converter is not internally fused. Externally fuse the input line (see Table 2 on next page). Good installation practice for equipment powered by dc battery systems dictates that input fuses or circuit breakers should be located at the battery end of the cables feeding the converter. For this reason,

no input protection devices are incorporated into the Series 1675 converters to protect against fault conditions at the input to the converter. Instead, an appropriately-rated fuse or circuit breaker (see Table 2) should be installed near the battery in series with the positive (+) input line when this source is negative-grounded or not grounded (floating), or in series with the negative (-) input line when the battery source is positive-grounded.

The suggested cables to be used to connect the converter to its battery source and to connect to its load are shown in Table 2. The length of the connection cables ought to be kept to a minimum. If the length of the cables is to exceed 10 feet, lower gauge (i.e. larger) cables should be considered.

Table 2

Model Number	Input Cable Size (AWG)	Output Cable Size (AWG)	Recommended Input Fuse Rating (A)
1675-12-12-15	8	10	30
1675-12-15-12	8	12	30
1675-12-24-8	8	12	30
1675-12-28-7	8	12	30
1675-12-48-4	8	16	30
1675-24-12-15	10	10	20
1675-24-24-8	10	12	20
1675-24-48-4	10	16	30

IV. Operation and Maintenance

This converter should never be operated from a source voltage greater than 16 Vdc (for 12-volt input models) or 30 Vdc (for 24-volt input models) as this may stress or damage internal circuitry.

The maximum rated output current for each converter is shown in Table 1, rated continuous at 25°C ambient temperature. **At higher ambient temperatures (up to 70°C maximum), a duty-cycle limitation or output-current derating may apply.** For further information, see Bulletin No. 76A0032.

Other than preventing dust and debris from accumulating on external surfaces of the converter and occasionally checking the integrity of the electrical connections, no periodic maintenance should be required.

V. Repair and Return Information

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

VI. 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.