

VOLTAGE-BOOSTING DC-DC CONVERTERS

OPERATE 74-V LOCOMOTIVE ELECTRONICS THROUGH ENGINE CRANKING OR ON-BOARD LOWER-VOLTAGE RAIL VEHICLES

- 60-VDC MINIMUM OUTPUT AT INPUT VOLTAGES DOWN TO 20 VDC
- OUTPUT CURRENT UP TO 7 AMPERES
- -40°C to +70°C OPERATING TEMPERATURE RANGE
- CONVECTION COOLED
- EXTREMELY RUGGED AND RELIABLE



Model 1741-60-7



Model 1741-60-3.5

Model 1741-60-3.5 and Model 1741-60-7 dc-to-dc converters are designed to allow nominal 74-volt locomotive equipment to operate through low-input-voltage conditions or on-board 37-volt or 24-volt rail vehicles. When the converter's input voltage drops below 60 Vdc, the converter automatically boosts its output voltage to 60 Vdc to continue powering equipment connected to it. At input voltages above 60 Vdc, the converter provides additional filtering and transient protection without substantially altering the input voltage. Conservative electrical design, very high operating efficiency and rugged mechanical construction make these converters well suited for powering voice/data radios and other sensitive electronic loads in the harsh railroad vehicle environment.

SPECIFICATIONS

Input Voltage Range

20 Vdc to 90 Vdc. Converter will not be damaged by occasional excursions to 100 Vdc.

Output Voltage

At input voltages above 60 Vdc, output voltage is approximately equal to input voltage. Below 60 Vdc, output voltage is boosted to 60 Vdc.

Output Current Rating (continuous duty)

Model 1741-60-3.5: 3.5 amperes max.
Model 1741-60-7: 7 amperes max.

Output Voltage Variation

At input voltages above 60 Vdc, the output voltage is equal to the input voltage \pm 1 volt across the load range. At input voltages less than 60 Vdc, the output voltage is 60 Vdc \pm 1 volt across the line and load range.

Output Voltage Ripple

Typically less than 50 mV rms at input voltages below 60 Vdc.

Conversion Efficiency

Greater than 90% over most of the load range. No-load input power is typically about 3 watts.

Protection

Protection against accidental reversal of the dc input-voltage polarity during installation is provided by an internal shunt diode working in conjunction with the front-panel fuse, which is wired in series with the input positive (+) line. Protection against moderate output overloads is provided electronically, and the converter will resume normal operation upon removal of the fault. More severe overloads and output short circuits may cause the front-panel fuse to open.

Isolation

Isolation capable of passing a 2,000-Vdc insulation stress test is provided between the converter circuitry and chassis ground. The input and output are not isolated from each other and share a common return.

Transient-Withstand Capability

The converter will not be damaged when its input is subjected to high-energy transients as specified in IEC 1000-4-5, Surge Immunity Test, Level 3, applied line-to-line or line-to-chassis.

Ambient Temperature Range

-40°C to +70°C (-40°F to +158°F)
(Convection Cooling)

Input/Output Connections

The input and output connections are provided via heavy-duty barrier strip terminal blocks accepting lugs for use with #8 hardware.

Mechanical: Dimensions given in inches (mm):

Model 1741-60-3.5: 1.9 (48) high x 7.0 (177) wide x 9.0 (228) deep (excluding flanges, terminal block and fuse holder). Weight: 3.8 pounds (1.7Kg)

Model 1741-60-7: 3.0 (76) high x 7.0 (177) wide x 9.0 (228) deep (excluding flanges, terminal block and fuse holder). Weight: 5.3 pounds (2.4Kg)

Mounting flange on base accepts four #10 screws. Hole pattern is 6.6 (168) front-to-back and 7.6 (193) wide.

For Additional Information

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Information provided in this bulletin is subject to change without notice.