

74-VDC POWER CONDITIONER



- OPERATE LOCOMOTIVE ELECTRONICS THROUGH UNDERVOLTAGE/OVERVOLTAGE POWER BUS ANOMALIES
- 20-135 VDC OPERATING INPUT VOLTAGE
- 60-80 VDC OUTPUT VOLTAGE AT UP TO 10 AMPERES OUTPUT CURRENT
- -40°C to +70°C OPERATING TEMPERATURE RANGE, CONVECTION COOLED
- MECHANICALLY RUGGED AND CONSERVATIVELY RATED

The **Model 1743-74-10** power conditioner is a dc-dc converter that enables nominal 74-volt electronic equipment to operate through wide variations in the locomotive power bus while also providing additional filtering and transient-withstand protection. The converter automatically boosts abnormally low input voltages and limits abnormally high input voltages to within approximately 60 to 80 Vdc. At input voltages in the normal operating range between these undervoltage/overvoltage anomalies, the converter provides a filtered and protected output voltage that is directly proportional to its input voltage. Conservative electrical design, very high operating efficiency and rugged mechanical construction make this converter well suited for powering voice/data radios and other sensitive electronic loads in the harsh railroad vehicle environment.

SPECIFICATIONS

Input Voltage Range

40 Vdc to 135 Vdc continuous, down to 20 Vdc for up to 10 seconds in any 2-minute interval

Output Voltage Range

60 Vdc to 80 Vdc typical
56 Vdc minimum to 82 Vdc maximum

Output Current Rating

10 amperes maximum (continuous duty)

Conversion Efficiency

95% or better over most of the line/load range. No-load input power is typically less than 5 watts.

Protection

Protection against overloads, short circuits and output overvoltages is provided electronically. Recovery to normal operating conditions is automatic upon removal of the overload or short-circuit fault. Following an overvoltage shutdown, input power to the converter may need to be removed and reapplied to resume converter operation.

Protection against accidental reversal of the input voltage polarity during installation is provided by a shunt diode working in conjunction with a user-supplied input fuse or circuit breaker. See section titled "Installation".

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.

Input/Output Connections

The input and output connections are provided via heavy-duty barrier strip terminal blocks. The input block accepts lugs for use with 1/4-in. studs, and the output block accepts lugs for use with #6 hardware.

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

Ambient Temperature Range

-40°C to +70°C (-40°F to +158°F)
with convection cooling

Installation

Good installation practice for mobile electronic equipment dictates that input fuses or circuit breakers should be located at the power-source end of the cables feeding the converter. For this reason, no protection devices are built inside the Model 1743-74-10 to protect against fault conditions at the input to the converter. Instead, a 40-ampere fuse or circuit breaker should be installed near the dc-input source in series with the positive (+) input line.

Mechanical

The Model 1743-74-10's enclosure is constructed of painted aluminum (black) with welded seams and gasketed assembly surfaces. It is designed for mounting in a Locomotive Systems Integration (LSI) equipment rack (package width is 3 MCU's). Weight is 10.5 lbs (4.8 kg).

For Additional Information

Telephone: (919) 732-9351

Fax: (919) 732-9359

Web: www.wilmoreelectronics.com