

# WIDE INPUT-RANGE DC-TO-DC CONVERTERS



Model 1640-12-15

- DESIGNED FOR RUGGED MOBILE APPLICATIONS
- WIDE INPUT VOLTAGE RANGE (20-56 VDC)
- 13.6-VDC OUTPUT AT 15 A OR 7.5 A (OTHER OUTPUTS AVAILABLE)
- LOW STANDBY-POWER DEMAND, HIGH CONVERSION EFFICIENCY
- OPERATING TEMPERATURE RANGE: -22°F TO +140°F (-30°C TO +60°C)
- INPUT-TO-OUTPUT ISOLATION
- CONVECTION COOLED

Series 1640 dc-to-dc converters provide an isolated, regulated and well-filtered dc output voltage from 24-Vdc, 36-Vdc or 48-Vdc battery systems. Applications include powering voice and data radio transceivers and other critical electronic equipment in harsh vehicular environments. Models with 13.6-Vdc output at 15 amperes (Model 1640-12-15) and 7.5 amperes (Model 1640-12-7.5) are described in this bulletin. Technical information on other versions with output voltages in the range of 5 to 28 volts is available on request.

## SPECIFICATIONS

### Input Voltage Range

20 Vdc to 56 Vdc

### Output Voltage

13.6 Vdc

### Output Current

For Model 1640-12-15: 15 amperes intermittent<sup>†</sup>, 10 amperes continuous  
 For Model 1640-12-7.5: 7.5 amperes intermittent<sup>†</sup>, 6 amperes continuous

<sup>†</sup>Intermittent duty for powering a mobile, two-way radio with a transmit duty cycle of 20%

### Output Voltage Regulation

Versus Line: ±0.5%  
 Versus Load: ±0.5%

### Output Voltage Ripple

Typically less than 20mV rms, 100mV peak-to-peak

### Efficiency

No-load power demand is less than 4 watts and efficiency is typically greater than 80% from 15% to full load.

### 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 output overvoltage shutdown, input power to the converter may need to be removed and reapplied to resume converter operation. Protection against accidental reversal of dc input-voltage polarity during installation is provided by a shunt diode working in conjunction with the fuse on the front panel.

### Isolation

Isolation capable of passing a 500-Vdc stress test is provided between the input and output and between the input and chassis.

### Ambient Temperature Range

-22°F to +140°F (-30°C to +60°C)

### Mechanical

Size:  
 Dimensions given in inches (mm).

For 7.5-ampere models: 1.9 (48) high x 7.0 (177) wide x 9.0 (228) deep (excluding flanges, terminal block and fuse holder).

For 15-ampere models: 3.0 (76) high x 7.0 (177) wide x 9.0 (228) deep (excluding flanges, terminal block and fuse holder).

Mounting flange on base is 0.5 (13) wide (each side). Fuse holder extends 0.65 (16.5) from front panel.

Weight:

For 7.5-ampere models: 3.25 pounds (1.5 kg)

For 15-ampere models: 5 pounds (2.3 kg)

Mounting:

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

### Input/Output Connections

The input, output and chassis ground connections are provided via heavy-duty barrier-strip terminal blocks. The terminal-block screws accept lugs for use with #6 hardware.

### Additional Information

For additional information on this or other Wilmore Electronics Company dc-to-dc converters, dc-to-ac inverters and uninterruptible power systems, please contact our Sales Department at (919) 732-9351 or FAX (919) 732-9359. Web site: [www.wilmoreelectronics.com](http://www.wilmoreelectronics.com)