Wilmore ELECTRONICS CO., INC.
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MODEL 1645
DC-DC CONVERTER

BULLETIN NO. 7041

24-VOLT TO 13.6-VOLT DC-DC CONVERTER

Model 1645-24-12-30

- **30-AMPERE OUTPUT**
- **HIGH POWER-CONVERSION EFFICIENCY (94% TYPICAL)**
- **-30°C TO +60°C TEMPERATURE RANGE**
- **RUGGED DESIGN AND CONSTRUCTION FOR MOBILE APPLICATIONS**
- **LIGHT WEIGHT, LOW PROFILE, EASY TO INSTALL**

The Model 1645-24-12-30 provides a well-regulated 13.6-Vdc negative-ground output from a 24-Vdc negative-ground battery system. The unit is rated for a continuous output current of up to 30 amperes yet operates with a very low standby (no load) current drain of approximately 65 mA. This makes it ideally suited for powering mobile-radio transceivers and other loads when low battery drain under extended "stand-by" conditions is an important consideration. The high conversion efficiency of the Model 1645-24-12-30 minimizes heat generation and enhances long-term reliability. The ruggedized mechanical construction and conservative electrical design ensure long service life and dependable performance in harsh environments such as those encountered in fleet trucks, transit buses, heavy construction equipment and other industrial vehicles and equipment.

SPECIFICATIONS

Input Voltage
20 to 32 Vdc (24 Vdc nominal), negative ground

Output Voltage
13.6 Vdc, negative ground

Output Current
0 to 30 Adc

Output-Voltage Regulation
Versus Line: ±0.5%
Versus Load: ±1%

Output-Voltage Ripple
Typically less than 10mV rms, 75mV peak-to-peak

Protection
Protection against output overloads and short circuits is provided electronically. Recovery to normal operating conditions is automatic upon removal of the fault.

Temperature Range (Ambient)
Operating: -30°C to +60°C (-22°F to +140°F)
Storage: -40°C to +95°C (-40°F to +203°F)

Input/Output Connections
The positive input and output voltage connections are made via a heavy-duty barrier-strip terminal block with #12 hardware. The common (negative) input and output voltage connections are made via a 1/4" x 20 stud.

Efficiency
The efficiency of the converter exceeds 94% for most of the load range (see Fig. 1). The no-load input current is approximately 65 milliamperes.

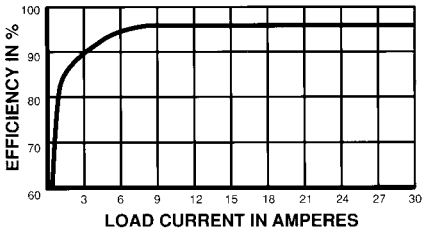

FIGURE 1. TYPICAL EFFICIENCY VS. LOAD CURRENT FOR MODEL 1645

Installation
Good installation practice for mobile electronic equipment dictates that input fuses or circuit breakers should be located at the battery end of the cables feeding the converter. For this reason, no protection devices are incorporated in the Model 1645-24-12-30 to protect against fault conditions at the input to the converter. Instead, a 30-A fuse or circuit breaker should be installed near the battery in series with the positive (+) input line.

Mechanical
Size:
Dimensions given in inches (mm).

2.5 (64) high x 7.9 (201) wide x 7.9 (201) deep, excluding mounting flanges and terminal block.

Mounting flange on base is 0.7 (18) wide (each side).

Terminal block extends 1.0 (26) from front panel.

Weight:
4.2 pounds (1.9 kg)

Mounting:
Mounting flanges on base will accept four #10 screws.
Hole pattern is 5.9 (150) wide and 8.6 (219) front to back.

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, or visit our Web site: www.wilmoreelectronics.com.