

# 250-VA DC-TO-AC INVERTER

## 120-VAC, 60-Hz OUTPUT



Model 1652-24-120-60-U

### FEATURES

- 12, 24, 48 OR 130 VDC INPUT
- HEIGHT 1.75" (1 RACK SPACE)
- ISOLATED, REGULATED FREQUENCY-STABLE OUTPUT
- 82%-90% EFFICIENT
- CONVECTION COOLED
- AVAILABLE WITH INTEGRAL HIGH-SPEED TRANSFER SWITCH FOR UPS/STANDBY-POWER APPLICATIONS

Designed for space-limited applications within the telecommunications, data-processing and utility industries, the 250-VA Model 1652 dc-to-ac inverter occupies only 1.75 inches (1U) of vertical rack space. The inverter provides a well-regulated 120-Vac, frequency-stable 60-Hz quasi-sine-wave output and is available in 12, 24, 48 and 130-Vdc input versions. Compatible with either 19-inch or 23-inch equipment racks, the inverter can operate at maximum rated power with simple convection cooling.

The conservatively rated Model 1652 is well suited for powering a variety of loads, from sensitive electronic equipment to small motors and other nonlinear loads. It is available as a plain inverter or with built-in automatic load switchover features to permit operation in UPS or standby-power modes.

Table 1

Nominal Input Voltage (Vdc)	Input Voltage Range (Vdc)	Input Current No Load <sup>1</sup> (A dc)	Input Current Full Load <sup>2</sup> (A dc)	Efficiency <sup>2</sup>	Model Number <sup>3</sup>
12	10.5 - 16	0.52	28.6	83%	1652-12-120-60
24	21-29	0.25	13.9	86%	1652-24-120-60
48	42-58	0.13	6.8	88%	1652-48-120-60
130	105-145	0.05	2.7	88%	1652-130-120-60

<sup>1</sup>Typical at no load and nominal input voltage

<sup>2</sup>Typical at full load and minimum input voltage

<sup>3</sup>See reverse side for complete model numbering information

## SPECIFICATIONS

### Input Voltage and Current

The nominal input voltage, the input voltage range, the no-load input current and the full-load input current are shown in Table 1.

### Output Voltage

118 Vac nominal<sup>1</sup>, single phase

### Frequency

60 Hz nominal  $\pm 0.05$  Hz maximum variation over the full range of load and input voltage changes. Temperature coefficient is  $\pm 0.02\%$  maximum per °C.

### Volt-Ampere Rating

250 VA

### Output Voltage Regulation

$\pm 0.2\%$  versus dc input line  
 $\pm 2.0\%$  versus load

### Output Voltage Wave Shape

Three-level stepped approximation to a sine wave with peak, average and rms values approximating those of a sine wave.

### Operating Temperature Range

For 24, 48 and 130-Vdc input versions:  
-30°C to +60°C

For 12-Vdc input versions:  
-30°C to +40°C (for operation up to +60°C, derate the output volt-ampere rating linearly to 175 VA)

### Storage Temperature Range

-40° C to +95°C

### Protection

Protection against overloads and accidental short-circuit of the output is provided electronically, and recovery is automatic upon removal of the abnormal load. A front-panel circuit breaker in series with the dc input provides protection against accidental reversal of input polarity during installation.

### Front-Panel Controls and Indicators

A combination circuit breaker and ON/OFF switch is provided for input power. L and U versions include an ac-line fuse and three LED status indicators.

### Mechanical Description

Figure 1 provides overall dimensions. Weight is approximately 10 lbs. Brackets are provided for 19-inch or 23-inch rack mounting.

<sup>1</sup>As measured with a conventional average-responding, rms-calibrated voltmeter

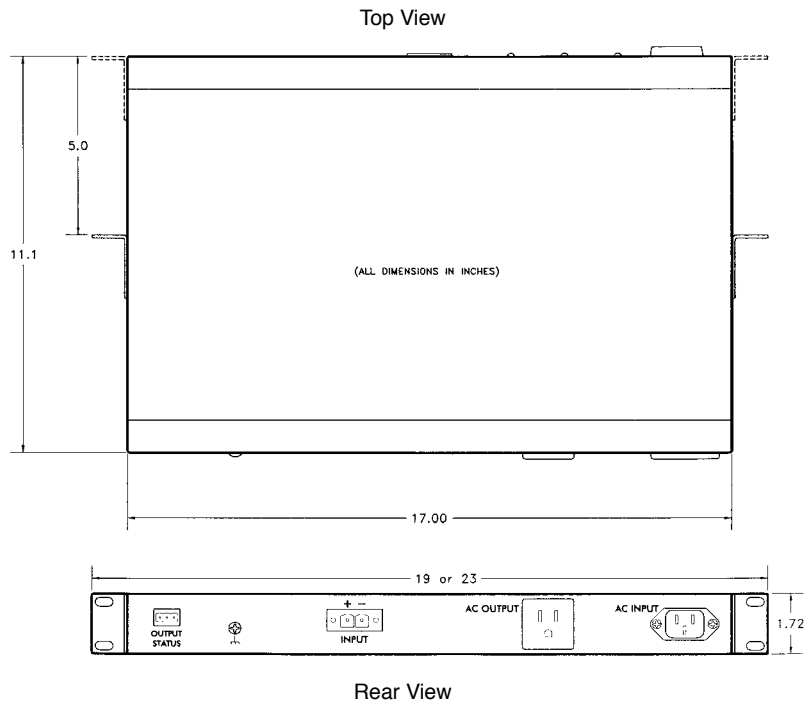


Figure 1. Outline dimensions. Inverter shown is U or L version.

### Standard Configurations

**P VERSION:** Adding the suffix **P** to the basic model designates a plain inverter, i.e. a unit with no internal inverter-to-line or line-to-inverter transfer switching provisions. ("Line" refers to commercial ac power.) This version does not have the three front-panel LED status indicators, ac-line fuse or alarm contacts.

**U VERSION:** Adding the suffix **U** to the basic model number designates the inverter-preferred UPS configuration. In this configuration, the load power is normally provided by the inverter. However, if the inverter output is interrupted, an internal transfer switch automatically transfers the load from the inverter to commercial ac power. The transfer time between inverter and line is short (2 msec. typical) and such transfers are normally not detected by even highly sensitive loads. This version includes auxiliary Form C contacts for remote indication of alarm conditions, three front-panel LED status indicators and an ac-line fuse.

**L VERSION:** Adding the suffix **L** to the basic model number designates a unit which is identical to the "U" version except that, in the L configuration, the load power is normally provided by the commercial ac line and the inverter operates in the standby mode. If commercial ac

power is interrupted, an internal transfer switch automatically transfers the load to the inverter. Upon restoration of commercial ac power, there is a delay of approximately five seconds, the load is then transferred back to commercial ac power and the inverter again operates in the standby mode. Other features such as transfer speed, alarms, indicators, etc. are the same as in the U version.

### Model Numbering Information

For ordering purposes the Model 1652 should be identified by an expanded model number consisting of four numbers followed by a letter suffix. In sequence, they designate:

- basic 250 VA inverter type (1652)
- nominal input voltage (12, 24, 48 or 130)
- nominal output voltage (120)
- output frequency (60)
- configuration (P, U or L version)

For example, the correct part number for a 48-volt input, inverter-preferred UPS configuration is Model 1652-48-120-60-U.

### OTHER WILMORE PRODUCTS

For information about other Wilmore dc-to-ac inverters or for information about other power conditioning products such as switching power supplies, dc-to-dc converters and uninterruptible power systems, please contact our sales department.

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

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