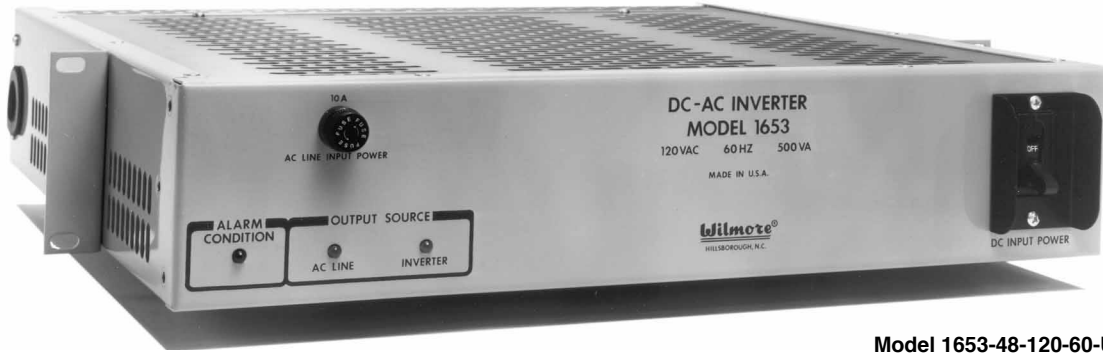


500-VA DC-TO-AC INVERTERS 120-VAC, 60-HZ OUTPUT



Model 1653-48-120-60-U

FEATURES

- HEIGHT 3.5 IN.
- 80%-85% EFFICIENT
- CONVECTION COOLED
- WELL-REGULATED, FREQUENCY-STABLE OUTPUT
- HIGH SURGE CAPABILITY FOR DIFFICULT LOADS
- OVERLOAD PROTECTED
- AVAILABLE WITH INTEGRAL HIGH-SPEED TRANSFER CIRCUITS (INVERTER-TO-LINE OPTION OR LINE-TO-INVERTER OPTION)

Designed as a compact, rugged, cost-effective alternative to the inverters typically available to users within the telecommunications industry, the 500-VA Model 1653 rackmount inverter occupies only 3.5 in. of vertical rack space. It provides a well-regulated, 120-Vac, frequency-stable, 60-Hz, quasi-sinewave output. Standard versions permit operation from 24-Vdc, 48-Vdc or 130-Vdc battery sources, and the unit is compatible with either 19-inch or 23-inch equipment racks. For operation in -10°C to $+50^{\circ}\text{C}$ ambient, only simple convection cooling is required.

An especially conservative electrical design permits the inexpensive Model 1653 not only to be remarkably well suited for powering sensitive telecommunications and data processing equipment, but also to be well suited for powering many loads normally considered difficult for inverters, including, for example, switch-mode ac-dc power supplies, small motors or even half-wave rectified loads.

The Model 1653 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 ¹ (A dc)	Input Current Full Load ² (A dc)	Efficiency ²	Heat Dissipation ² (Btu/hour)	Model Number ³
24	21-29	0.58	29.0	82%	375	1653-24-120-60
48	42-58	0.35	14.0	85%	290	1653-48-120-60
130	105-140	0.15	5.7	83%	335	1653-130-120-60

¹Typical at no load and nominal input voltage

²Typical at full load and minimum input voltage

³See 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 nominal¹, single phase

Frequency

60 Hz nominal. ± 0.25 Hz maximum variation over the full range of load and input voltage changes. Temperature coefficient is $\pm 0.02\%$ maximum per $^{\circ}\text{C}$.

Volt-Ampere Rating

500 VA

Output Voltage Regulation

$\pm 1.0\%$ 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.

C-Message-Weighted Noise

Noise fed back to a typical stationary battery source is less than 32 dBnC.

Temperature Range

Operating: -10°C to $+50^{\circ}\text{C}$
 Storage: -40°C to $+85^{\circ}\text{C}$

Protection

Protection against short-term overloads and accidental short-circuit of the output is provided electronically, and recovery is automatic upon removal of the abnormal load.

A controlled-delay front-panel circuit breaker in series with the dc input provides protection against long-term output overload and against accidental reversal of input polarity during installation. For 48V-input inverters, this circuit breaker is standardly provided in the negative dc-power input line; for 24V-input and 130V-input inverters, this circuit breaker is standardly provided in the positive dc-power input line.

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.

¹As measured with a conventional average-responding, rms-calibrated voltmeter

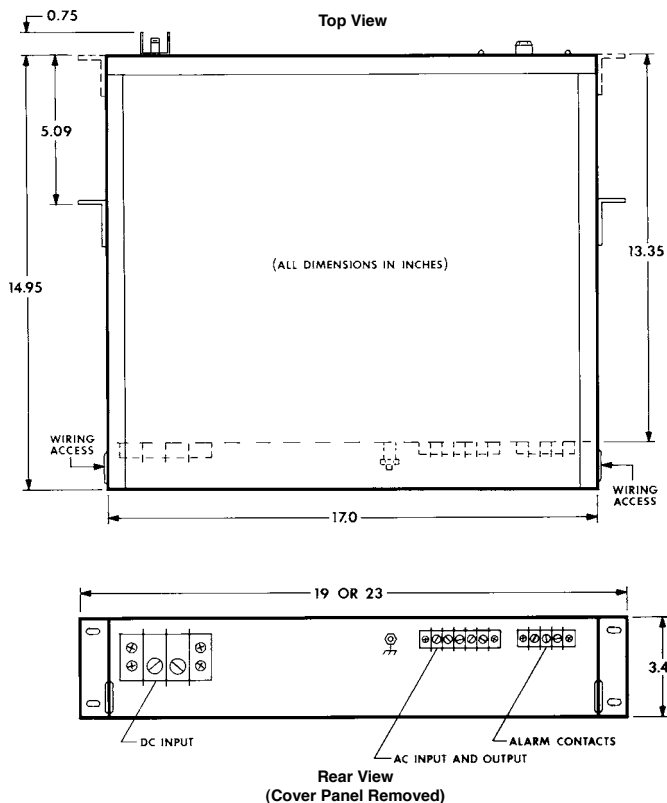


Figure 1. Outline dimensions. Inverter shown is U or L version.

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.

Mechanical Description

Figure 1 provides overall dimensions. Weight is approximately 38 lbs. Brackets are provided for 19-inch or 23-inch rack mounting. A cover plate protects the recessed rear-panel wiring connections. Standard paint color (front and sides) is light gray (ANSI-61).

Model Numbering Information

For ordering purposes the Model 1653 should be identified by an expanded model number consisting of four numbers followed by a letter suffix. In sequence, they designate:

- basic 500 VA inverter type (1653)
- nominal input voltage (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 1653-48-120-60-U.

Specifications subject to change without notice.

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