



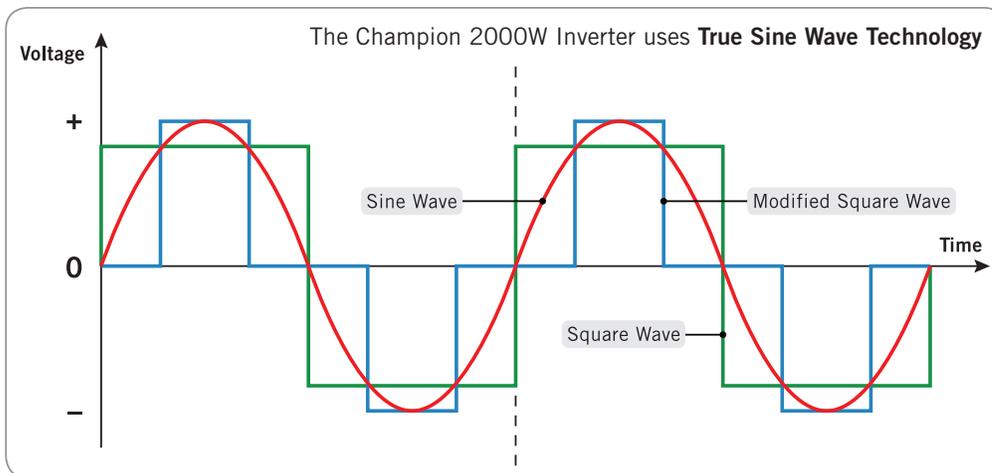
Champion Global Power Equipment 2000W Inverter

The world of inverter generators (commonly referred to as inverters) is full of facts and figures that are often confusing and sometimes misleading. This paper will focus on four often misunderstood characteristics:

- True Sine Wave
- Noise level
- Run Time
- Parallel Operation

What is a True Sine Wave?

A true sine wave (TSW) describes the perfect, smooth waveform of electrical output. Alternating current (AC) produced by a TSW inverter, such as a Champion 2000W Inverter, has a smooth waveform. This differs from the modified sine wave (MSW) of square wave and modified square wave inverters.



The waveform of these types of inverters is a rough, stepped, digital approximation of a TSW. See the graph to the left.

MSW power can cause problems with certain electrical equipment, such as variable speed motors, drills, sensitive electronics, power supplies, transformers, battery chargers and dimmer switches. Consult the equipment manufacturer before using MSW power sources.

Devices that depend on TSW output for proper operation (i.e. sensitive to voltage peaks or zero crossings) could be damaged or experience problems with MSW output. Radio operators may experience radio frequency noise from these power sources. Inverters with MSW output may produce a hum or buzz in the audio of TV's, radios and satellite systems. These applications should be powered by TSW sources.

Noise Levels Explained

Noise level (technically, sound pressure level) is measured in decibels (dB) which is a logarithmic unit. The noise level of a device decreases over distance. A noise source will “sound” louder from 1 meter away than the same source would “sound” from 7 meters away. As a rule of thumb, the noise level decreases 6 dB when the distance from the source is doubled. Many manufacturers measure the noise level of their inverters from a distance of 7 meters (about 23 feet).

Noise level measurements can be difficult to accurately reproduce. Sound reflecting and sound absorbing surfaces (ground surface, walls, vegetation), as well as ambient noise (wind, cars) are two factors that may influence dB measurements.

The Champion 2000W inverter noise level (shown in **Table 1**) is measured under the following conditions following conditions:

- Distance of 7 meters (23 feet) from inverter
- Inverter placed on concrete surface
- 30.4 meters (100 feet) from reflective surfaces (walls)
- Ambient noise level 45 dB

1	
% of Full Load	Noise Level (dBA)
0	53
25	54
50	59
75	65
100	65

Inverter Run-Time

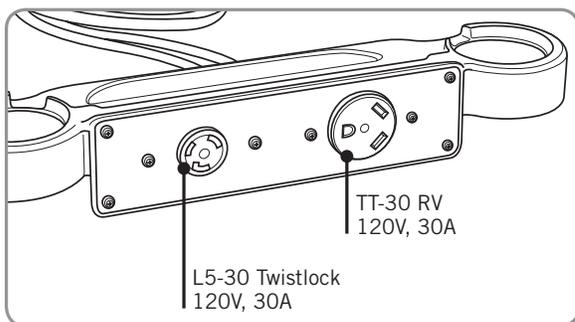
Inverter run-time varies depending on the following factors:

- Electrical load connected to the inverter
- Ambient temperature
- Ambient pressure (altitude)
- Fuel capacity

A single, industry standard for measuring run-time does not exist.

Some manufacturers base their run-time claims on 25% load while others measure with a 50% load. The Champion 2000W inverter has a fuel capacity of 1 gallon. **Table 2** shows runtime at different load levels measured at sea-level and 75 degree fahrenheit ambient temperature.

2	
% of Full Load	Run-Time
25	9
50	6
75	4.5
100	3.5



Parallel Operation...What's that?

All inverter generators can operate as stand-alone devices. Some are specifically designed to operate in tandem with a second inverter. Parallel operation synchronizes the individual outputs to deliver the combined power of both inverters to a high amperage receptacle.

Parallel operation is achieved using an electrical panel equipped with a special set of cables. The set consists of a communication tether and power leads for each inverter. The power leads transmit power from each inverter to the parallel panel receptacles. The communication tether allows sophisticated software to synchronize the phase of the TSW from each inverter. The TSW from the two inverters cannot be used together unless they are synchronized (“in-phase”).

The Champion Parallel Kit is equipped with the following receptacles:

- (1) TT-30 RV, 120V, 30A
- (1) L5-30 Twistlock, 120V, 30A

In addition, any of the duplex receptacles on the generator panels may also be used as long as the combined rating of the two inverters is not exceeded.

Champion 2000W Inverters are specially designed for “stackability”. The parallel kit nests conveniently between two stacked inverters, providing a stable mounting location for the electrical receptacles.

What is the benefit of connecting two inverters for Parallel operation?

A single 2000W inverter cannot supply enough power to operate a typical, 13,500 BTU RV-style air conditioner. Two Champion 2000W Inverters can be connected and operated in tandem to supply sufficient power for an RV-style air conditioner (and then some).

Champion 2000W Inverters can only be used in parallel with another Champion inverter of the same model.

Engine Displacement	80 cc
Rated Power / Max Power	1600W / 2000W
Voltage	120V, 60 Hz, Single Phase
Fuel Capacity	1 gallon

Oil Capacity	0.4 Quart
Weight (dry)	48.06 lbs
Size (H x W x L) in.	16.3 x 13.2 x 19.3
Certifications - EPA, CARB, CSA	