

## SolarTech Power Solutions

# Make your own pure sine wave inverter



## Overview

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How to design a pure sine wave inverter?

To design a pure sine wave inverter from the scratch, we require the following circuit stages: A basic 50 Hz or 60 Hz inverter circuit. An op amp comparator using IC 741 or by configuring IC 555. Two sets of triangle waveform, one slow (low frequency) and the other fast (high frequency).

Are all sine wave inverters created equal?

However, not all inverters are created equal. One type of inverter that produces a high-quality sine wave output is the pure sine wave inverter. The SG3525 is a popular PWM (Pulse Width Modulation) controller that can be used to build a pure sine wave inverter.

How does a pure sine inverter work?

A pure sine inverter works by inducing an alternating sine waveform pattern across the primary transformer winding with a selected frequency rate. This frequency rate can be 50 Hz or 60 Hz, depending on the country and region specifications. This sine waveform is in the form of sine PWM which is a digital signal and not a linear signal.

What is a sine wave in a power inverter?

The sine wave is a fundamental waveform that is used in various applications, including power inverters. A power inverter is an electronic device that converts direct current (DC) to alternating current (AC) to power appliances and devices that require AC power.

Can a sine wave inverter output match a square wave output?

Although the modified squarewave or sine wave output could be OK with its RMS property and reasonably suitable for powering most electronic equipment, it can never match the quality of a pure sine wave inverter output.

How do I create a pure sine wave output?

To create the pure sine wave output, we will need additional circuitry, including a push-pull amplifier and a low-pass filter. The push-pull amplifier uses two power transistors to amplify and switch the output voltage, while the low-pass filter removes any high-frequency components and harmonics, leaving only the pure sine wave.

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### How To Build A Pure Sine Wave Power Inverter?

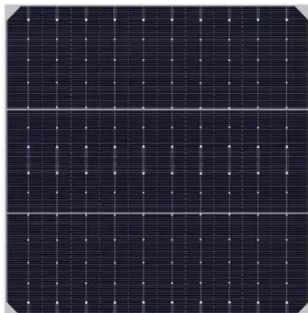
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LiFePO<sub>4</sub>

Intelligent BMS

Wide Temp:  
-20°C to 55°C

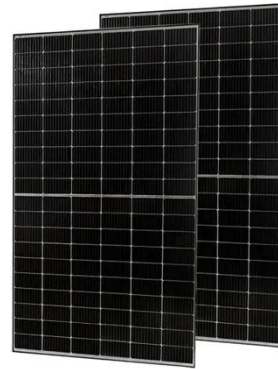


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