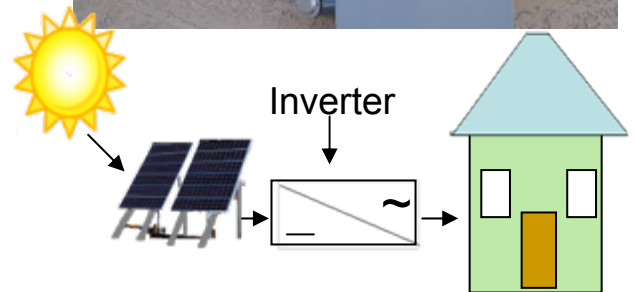
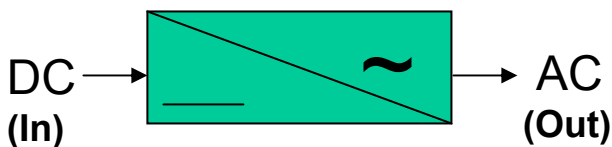


TECHNOLOGY DEVELOPMENT PROJECT FACT SHEET

UT007 INVERTER

What is an Inverter

The inverter is a critical part of a solar energy system. It converts the energy generated by solar panels from DC (direct current) into a clean 60 Hz AC (alternating current) waveform. Virtually all electrical appliances and devices use alternating current for their operation.



How does an inverter work

The inverter passes the input dc voltage through a matrix of electronic switches called IGBTs (Insulated Gate Bi-Polar Transistors). The matrix is rapidly switched to convert the dc voltage into a square wave with varying widths. This switched waveform is passed through a filter network, which puts out a clean 60 Hz sine wave output.

Types of Inverters

Grid-Connected Inverter. This inverter synchronizes with the electrical grid and delivers a pure sine wave output. If the grid goes down, this inverter will also shut down automatically.

Off-Grid Inverter. This inverter is primarily for off-grid customers to deliver power from batteries or solar panels. It contains its own (frequency) timing circuitry and typically delivers Square Wave, Modified Square Wave or Pure Sine Wave outputs.

Multi-Function Inverter. This inverter can be used for off-grid and on-grid power. If built with a transfer switch, this inverter can be used to deliver power from either batteries, generators or solar panels to an on-grid customer that has suffered a grid black-out. It delivers a pure sine wave output.