

A-Core Container

The voltage of the front stage of the inverter keeps rising



Overview

What causes a voltage rise?

Voltage Rise - Typically occurs with the same inverters at the end of a cable run and is caused by resistance greater than 2% voltage drop. Wires have resistance causing Voltage Drop. All grid-tied inverters increase voltage to export power. Typically they only need to raise the voltage above the grid and any wire resistance. Enphase calls.

Why does the inverter operate in a rising input waveform?

If the input waveform increases more slowly or the load impedance is small, the inverter operates in the saturation region for a longer time before switching into the linear region. Only the falling output (rising input) waveform is considered. The following analysis, however, is equally applicable to a rising output (falling input) waveform.

How CMOS inverter works?

So in the CMOS inverter, we can see the capacitances C_{gdP} and C_{gdN} oppose the sudden change in the voltage at the output terminal. So, as V_{in} increases, the output voltage follows the V_{in} very little time (as sudden change across the capacitor is opposed) and then falls as expected (due to the NMOS being turned ON).

What causes peaks / spikes in a square wave inverter?

If the rise / fall times of the inverter's input signal are high enough, the Drain-Gate capacitance is sufficient to cause peaks / spikes at the output during the voltage transitions. From my experience, the peaks in this plot are quite small. Use a circuit simulator to simulate an inverter with a square wave input signal.

Why does my inverter trip?

The inverter may trip due to faulty voltage levels or a broken battery. It's

crucial to speak with a trained expert for a more thorough evaluation if you have any suspicions that this might be the problem. A faulty inverter element or loose connections could be one factor.

Why do inverters need to be turned off during a grid power cut?

During a grid power cut, the inverter must be turned off to prevent AC from being sent into the grid and threatening the professionals who are repairing the grid supply. By determining the grid's voltage as well as frequency and modifying the AC produced to match, the inverter continuously detects the existence of grid electricity.

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