



FTMRS SOLAR

## Bus voltage drops when inverter is overloaded





## Overview

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Why do inverters trip if DC bus voltage exceeds a threshold?

Some inverters will trip or issue an overvoltage fault if the DC bus exceeds a threshold (e.g., 800 V on a 400 V-class inverter). In multi-inverter systems sharing a DC bus, regeneration from one unit can affect others. Solar or battery-connected inverters may have intentionally higher DC bus voltages for MPPT or efficiency reasons.

What happens if a DC BUS is overloaded?

So the DC voltage on the DC bus will be  $1.414 \times$  the RMS reading of your incoming AC voltage. If your incoming power is overloaded slightly, your peak to peak incoming voltage will dip slightly. This will have a very small change on your RMS meter reading, but a more significant change on the DC bus voltage.

What is a DC BUS overvoltage fault?

A DC bus overvoltage fault simply means that the DC bus voltage exceeded the threshold for which the drive is rated. It is an instantaneous fault, meaning as soon as the voltage crosses this level, the control system detects this and trips the drive into a fault condition, disabling the drive's output. This is to protect the VFD from damage.

What causes a DC bus voltage to rise?

If it is undersized, disconnected, or faulty, the inverter cannot dump excess energy, causing the DC bus voltage to rise. The rectifier stage of the inverter converts AC line voltage to DC. If the input AC voltage is higher than nominal, the resulting DC bus voltage will also be higher.



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What would cause an erratic voltage on my ...

Dec 23, 2020 · When the inverter is powered on with loads under ~1000 Watts the DC bus voltage is regulated at 27.2 volts. When the inverter is ...

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Managing VFD Overvoltage Faults During Deceleration ...

Jul 31, 2025 · Introduction Variable Frequency Drives (VFDs) often experience DC bus overvoltage faults when decelerating motors with large inertial loads. This typically happens ...

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Causes and Solutions of Overvoltage Caused by Inverter

The so-called inverter overvoltage refers to the inverter voltage exceeds the rated voltage due to various reasons, and is concentrated on the DC voltage of the inverter DC bus. In normal ...

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Top 5 Inverter Overload Issues and How to Overcome Them

Oct 20, 2025 · It's important not to overload the extension cord by connecting too many high-power appliances, which can cause overheating or voltage drops. Always choose extension ...

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Inverter bus voltage is too low , DIY Solar Power Forum

Aug 17, 2024 · I can only assume it was badly programmed to interpret charging of caps as a problem on the HV DC bus. These inverters have a special circuit, like a soft start for the high ...

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What would cause an erratic voltage on my DC bus when my power inverter

Dec 23, 2020 · When the inverter is powered on with loads under ~1000 Watts the DC bus voltage is regulated at 27.2 volts. When the inverter is loaded with ~1000 Watts or more the ...

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How to Fix Inverter Overload Problems?

Jul 26, 2024 · Struggling with inverter overload problems? Learn how to troubleshoot and fix them with this comprehensive guide. From understanding overload causes to practical solutions, ...

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DC Bus Overvoltage White Paper

Dec 9, 2024 · A DC bus overvoltage fault simply means that the DC bus voltage exceeded the threshold for which the drive is rated. It is an instantaneous fault, meaning as soon as the ...

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What could cause the DC bus voltage on a drive to drop ...

Jul 22, 2022 · When you measure the incoming voltage with a voltmeter, you are measuring the RMS voltage. So the DC voltage on the DC bus will be  $1.414 \times$  the RMS reading of your ...

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Understanding High DC Bus Voltage in Inverters

Jun 26, 2025 · A DC bus voltage higher than expected on an inverter typically indicates one or more of the following technical issues: Regenerative Braking or Overhauling Load: If the load ...

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## Inverter Overvoltage: Causes & Solutions Explained

Understand inverter DC bus overvoltage causes--high input voltage or regenerative energy. Learn protection methods like braking resistors and stall prevention.

## Top 5 Inverter Overload Issues and How to ...

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