SolarInnovate Energy Solutions

Inverter string voltage is high

Overview

Why does a string inverter have a 230V output?

The reason for this starts from the principle of the power inverter. For the DC-DC-BOOST circuit of the string inverter, the DC voltage needs to be boosted and stabilized to a certain value (this is called the DC bus voltage) before it can be converted to AC power. As to the 230V output, its DC bus voltage should be about 360V.

What is the operating voltage range for a string inverter?

The MPPT operating voltage range for most string inverters is between 80V and 600V, depending on the inverter make and model. The voltage range for Solar MPPT charge controllers is generally much lower and varies from 24V up to 250V. However, several high-voltage models are available which operate up to 600V.

What is the minimum string size of a PV inverter?

The minimum string size, then, is 15 modules. The maximum string size is the maximum number of PV modules that can be connected in series and maintain a voltage below the maximum allowed input voltage of the inverter. The Module Voc_max is calculated using the coldest temperature when the modules produce the highest expected voltage.

How does a string solar inverter work?

All modern string solar inverters have one or more MPPTs (maximum power point trackers) to track the string voltage and lock onto the optimum voltage, which in turn produces the maximum power. Throughout the day, many variables will influence the string voltage, including; weather, shading and temperature.

How much battery does a string inverter use?

The battery voltage depends upon the system power level. Lower power single

phase systems commonly use 48V battery, while higher power three phase systems use 400V battery. Systems with even higher power range of string inverters could use 800V battery for storage. This may vary depending on the application and use case.

How do I Optimize my inverter's output voltage?

But truly optimizing the string’s output means choosing a string length that lands within a more narrow optimal voltage range: the “rated MPP (maximum power point) voltage range.” Input voltages within this range allow the inverter to output at its rated value.

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