



# SG110CX

## Characteristics Curves

**SUNGROW**

## 1. Introduction

This document describes the characteristics curves of SG110CX string inverter.

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## 2. Characteristics Curves

### 2.1. Temperature Dependent Derating

Excessive increase in the internal temperature will shorten the service life of electronic devices. Therefore, when the ambient temperature is high, the inverter will appropriately reduce the output power to ensure safe and long-term operation.

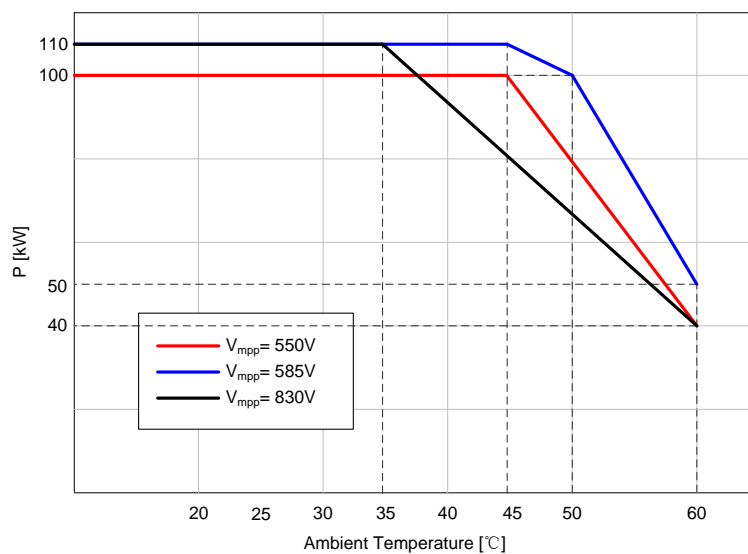


Fig.1. Temperature Dependent Derating Curve (Pf=1)

### 2.2. Altitude Dependent Derating

At high altitudes the air will be thin due to the low air density. Charged particles are more susceptible to ionization in thin air, which means that low voltages are more likely to break down the air. Therefore, when the clearance and creepage distance between the components inside the inverter are fixed, it is necessary to limit the DC voltage according to the following curve at the stage of designing the power station, to ensure electrical safety.

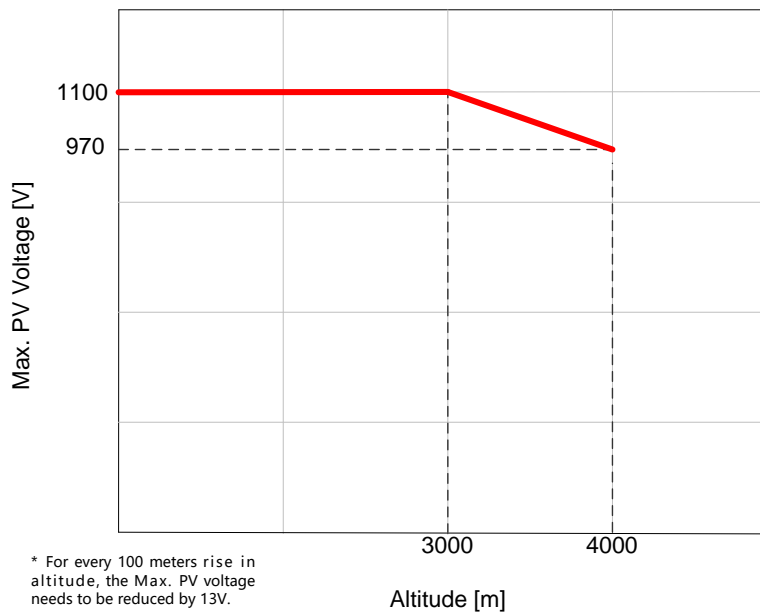


Fig.2. Altitude Dependent Derating Curve

### 2.3. DC Voltage Dependent Derating

If the inverter still runs at large power when the DC voltage is excessively high, the power tube will carry high voltage and current, which requires the inverter to lower output power and reduce the DC current, so as to ensure safe and long-term operation. In practical applications, PV modules should be properly configured to avoid unfavorable high voltages.

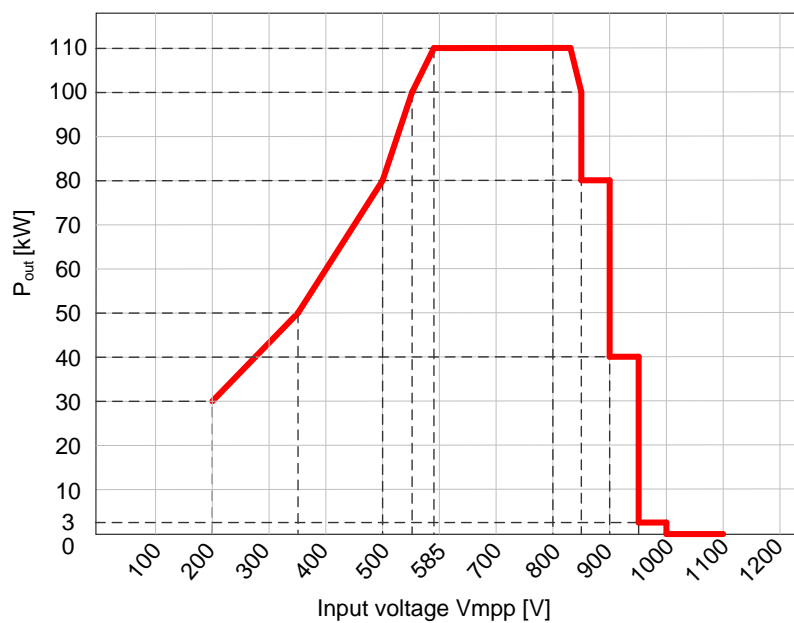


Fig.3. DC Voltage Dependent Output Power Derating Curve (Pf=1)

## 2.4. AC Voltage Derating Curve

When the grid voltage drops (still higher than the undervoltage protection threshold), the inverter will continue operating. However, if the inverter still outputs normal power, it may cause overheating of some components of the inverter, causing potential risks such as overheat and overload. In this case, the inverter automatically adjusts output power according to the grid voltage, to ensure that the AC output current is within permissible range and the device runs safely. The AC voltage dependent derating curve is as follows.

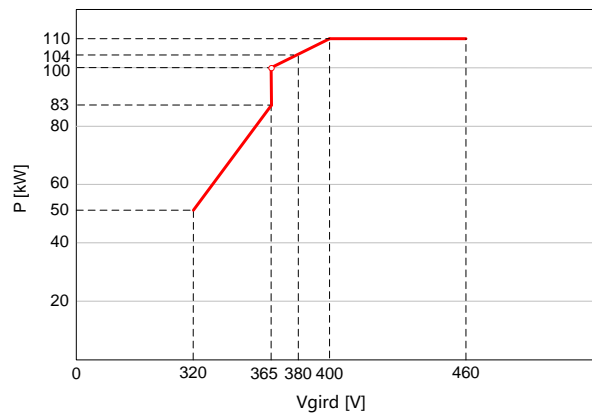


Fig.4. AC Voltage Dependent Derating Curve (Pf=1)