Technical Note

SYSTEM PERFORMANCE UNDER
SPECIFIC TEMPERATURE CONDITIONS

Version 1.0 – November 2025

SUNPOWER ENERGY STORAGE – GEN2

This technical note focuses on the operating temperature limitations and derating data for the SunPower Gen2 energy storage system:
3-phase inverters: SP-SRTH-5kW-G1, SP-SRTH-6kW-G1, SP-SRTH-8kW-G1, SP-SRTH-10kW-G1, SP-SRTH-12kW-G1, SP-SRTH-13kW-G1
1-phase inverters: SP-ARSH-3.68kW-G1, SP-ARSH-4.6kW-G1, SP-ARSH-5kW-G1, SP-ARSH-6kW-G1, SP-ARSH-8kW-G1, SP-ARSH-10kW-G1
SunPower batteries: SP-RH-B5K-G1-1S, SP-RH-B5K-G1-2S, SP-RH-B5K-G1-3S, SP-RH-B5K-G1-4S, SP-RH-B5K-G1-5S, SP-RH-B5K-G1-6S

It aims to provide installers with guidance on the anticipated system performance under various temperature conditions.

IMPORTANT: Before installing any SunPower energy storage system, carefully read and follow the latest Product Datasheet, Safety & Installation Manual and Warranty explaining the product temperature limitations.

INVERTER SP-SRTH-xxkW-G1, SP-ARSH-xxkW-G1
Operating temperature limitations and derating data

The SP-SRTH-10kW-G1 inverter has a broad operating temperature range spanning from -25°C to 60°C. For optimal performance, the recommended operating temperature range is 10°C to 30°C. Operating the inverter outside this ideal temperature range may lead to diminished system performance.

BATTERIES SP-RH-B5K-G1-xS
Operating temperature limitations and derating data

The SP-RH-B5K-G1-4S battery has distinct operating temperature ranges for charging and discharging:

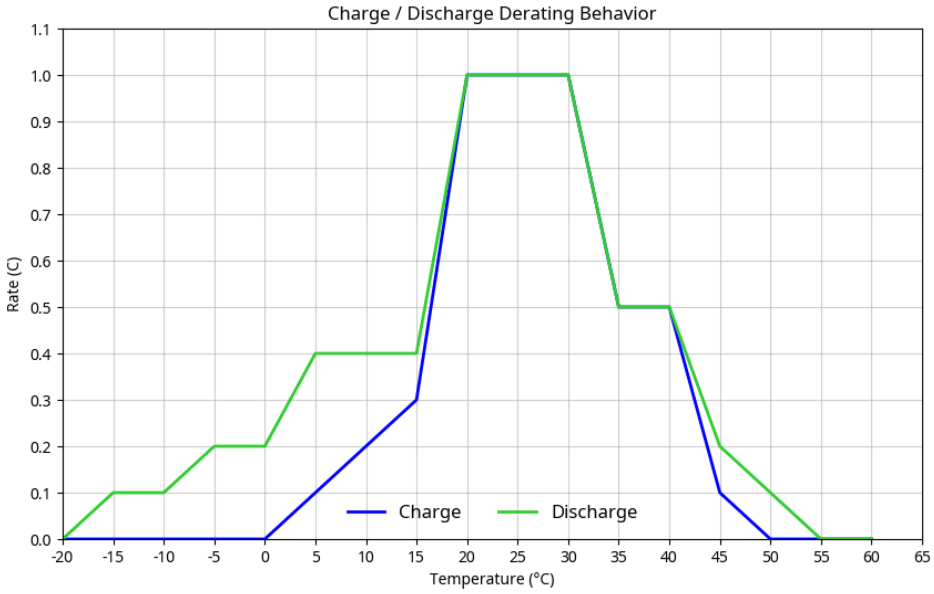
- Charging: 0°C to 60°C
- Discharging: -10°C to 60°C

Operating the battery outside the specified temperature ranges can negatively affect both its performance and its overall lifespan.

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Charge / Discharge Derating Behavior of SP-RH-B5K-G1-4S



Impact of temperature on system performance

Temperature has a significant influence on the performance of both the inverter and the battery.

- To maximize system performance, installers must carefully assess the anticipated temperature conditions at the installation site and location
- Strategic system placement in a well-ventilated area, shielded from direct sunlight, rain and snow is crucial for maintaining optimal operating temperatures
- Implementing shading solutions can further mitigate the adverse effects of high temperatures.
- In regions characterized by extreme temperature swings, supplementary measures such as cooling fans or temperature-controlled enclosures might be necessary to preserve optimal operating temperatures

By understanding the temperature limitations and derating data specific to the SP-SRTH-10kW-G1 inverter and SP-RH-B5K-G1-4S battery, installers can make well-informed decisions about system placement and ensure the best possible performance for end-users.

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