

# Temperature guidelines for IQ Battery installation

**Applicable regions: North America**

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# Contents

|   |                            |   |
|---|----------------------------|---|
| 1 | Purpose and scope.....     | 3 |
| 2 | Applicable products.....   | 3 |
| 3 | Storage.....               | 3 |
| 4 | Operating temperature..... | 3 |
| 5 | Safety vs performance..... | 4 |
| 6 | Conclusion.....            | 4 |
| 7 | Revision history.....      | 4 |

## 1. Purpose and scope

This technical brief is for Enphase installers in North America who are designing and installing systems with the third or fourth generation of IQ Battery products. It is also intended for AHJs evaluating plans that include Enphase IQ Batteries.

The IQ Battery must be stored and operated within specific temperature ranges. The Lithium ferro phosphate cells used in the battery module have safe operating temperature limits and permitted power ratings for various temperature ranges. Therefore, the ambient temperature can affect the product's functionality and warranty coverage. Stakeholders can use this technical brief to decide whether batteries can be mounted indoors or outdoors at a given project.

## 2. Applicable products

- IQ Battery 5P
- IQ Battery 10C
- IQ Battery 10CS

## 3. Storage

IQ Battery ships with a state-of-charge (SoC) <30% from the factory. It can be stored (when not operating) at a temperature range of:

- 32°F to 95°F (0°C to 35°C) for 18 months
- -4°F to 113°F (-20°C to 45°C) for 6 months
- -4°F to 131°F (-20°C to 55°C) for 1 month
- -22°F to 140°F (-30°C to 60°C) for 7 days

The durations specified above preserve battery life and avoid overdischarge to extremely low SoC levels that may render the battery unusable.

## 4. Operating temperature



**NOTE:** The following temperature ranges are internal ambient temperature or the temperature of the battery module inside the enclosure. The internal temperature of the battery module is usually 2°C higher than the external temperature. Enphase recommends comparing the internal temperature directly with temperatures seen at the place of installation and keeping a 2°C variation as a design margin or buffer for uncertainty.

The IQ Battery operates at optimal performance within the following temperature ranges:

- Charging at maximum power is supported between 59°F to 113°F (15°C to 45°C)
- Discharging at maximum power is supported between 32°F to 122°F (0°C to 50°C)

Outside these temperature limits, the battery will charge and discharge at a reduced power level, known as **derated power**. This behavior is typical for all lithium-ion cell-based batteries, as prolonged exposure to extreme temperatures while operating at full power can cause permanent damage to cells. To protect the battery cells from damage, the power input/output is managed through safety-certified firmware that automatically reduces the power output based on temperature.

See the full warranty documents at <https://enphase.com/installers/resources/warranty>.

## 5. Safety vs performance

As described in the preceding section, Enphase IQ Batteries' charge and discharge behavior may be reduced depending on the temperature recorded in the cell pack. For optimal performance, batteries must be kept within:

- 32°F to -4°F (0°C to -20°C): Less than 5% of total time per rolling year
- -22°F to -4°F (-30°C to -20°C): Less than 1 hour per rolling year
- Less than -22°F (-30°C): Never



**IMPORTANT:** Exposure to temperatures within -22°F to 140°F (-30°C to 60°C) does not represent a safety risk.

Batteries may derate their charge and discharge current, limiting performance, but there is no risk to safe operation within this range.



**NOTE:** To avoid impacting the battery's SoC retention capacity and warranty coverage, ensure the battery is not exposed to low temperatures (-22°F to -4°F or -30°C to -20°C) for a period exceeding seven days.

## 6. Conclusion

An installation location for the IQ Battery should be chosen based on the ambient temperature range the battery will experience at the installed location, among other site design considerations.

Installers and designers should select a location for the battery that minimizes the time it is subject to sub-optimal temperatures. This will limit the derating of charge and discharge and ensure the battery's SoC retention capacity is not hampered.

## 7. Revision history

| Revision      | Date           | Description                              |
|---------------|----------------|--|
| TEB-00300-2.0 | September 2025 | Added the "Applicable products" section. |
| TEB-00300-1.0 | June 2025      | Initial release.                         |