
Enphase Energy System PV and storage power limiting

Contents

Applicable countries	2
Overview	2
DER Power control system in Enphase Energy System	2
PV production limiting or Power Export Limiting	3
Setting PV power production limit as per DNSP regulations using Enphase Installer Portal	3
DNSPs and PV power production limiting.....	3
Setting PV microinverter power production limiting	3
Setting Grid Power Import Limit as per main switch circuit breaker size using Enphase Installer Portal	4
Setting Grid Power Import Limit on IQ System Controller for IQ Battery	4
Setting IQ Battery generation limit using Enphase Installer Portal	6
Revision history	7

Applicable countries

- Australia
- New Zealand

Overview

This guide describes how the Enphase Energy System provides installers with different power control abilities as per the site and local authority requirements. When enabled for a system, this distributed energy resource (DER) power limiting feature can control the power generation/import/export of one or more power production sources, Enphase Energy System, and other equipment.

DER Power control system in Enphase Energy System

The three DER power limiting options available for an Enphase Energy System in Australia are:

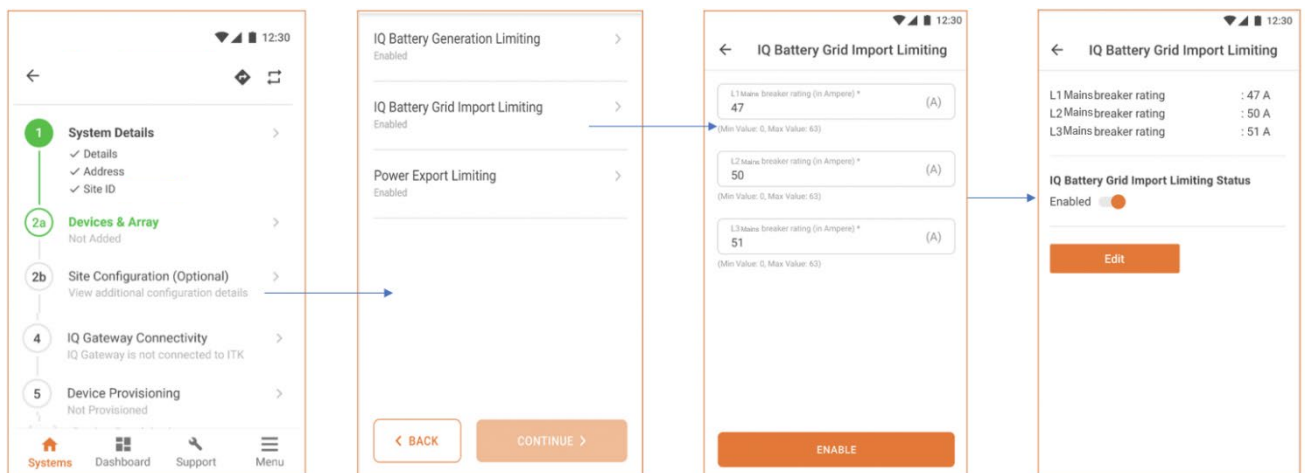
- PV production limiting or Power Export Limiting
 - This limits the power production of all microinverters connected to the IQ Gateway or the amount of power exported to the grid at any time.
- IQ Battery Grid Import Limiting on IQ System Controller
 - This limits the import of current from the grid to charge the batteries with respect to the user input value of the L1/L2/L3 mains supply breaker ratings to ensure that the main switch will not trip due to increased current demand to charge the batteries from the grid.
- IQ Battery Generation Limiting
 - This limits the total charge/discharge cumulatively from the batteries based on the user input value of generation limit to comply with the regulatory or site requirements.

These settings can be done on-site or remotely using Enphase Installer App or Enphase Installer Portal.



NOTE: To set the IQ Battery Generation Limiting, contact Enphase customer support.

An example of the Enphase Installer App for Power Export Limiting and IQ Battery Grid Import Limiting is as follows.



PV production limiting or Power Export Limiting

Setting PV power production limit as per DNSP regulations using Enphase Installer Portal

DNSPs and PV power production limiting

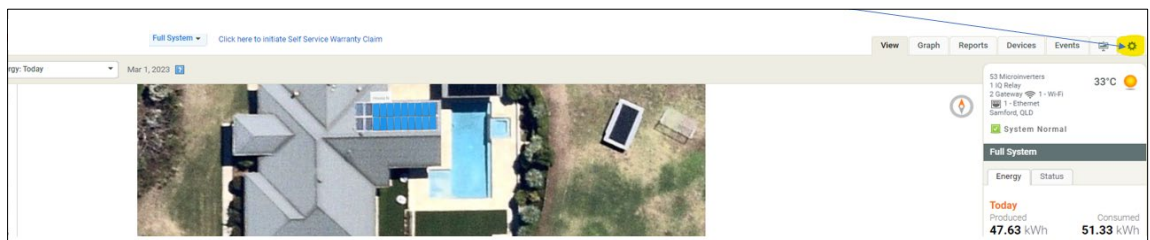
The power production limitation as per distribution network service providers (DNSPs) requirements allows the end customer/installer to remotely set generation limits on the IQ Battery and the PV micro inverters. The PV and IQ Battery Generation Limiting will be as per AS/NZS 4777.2:2020 section 6. For IQ Battery Generation Limiting, contact Enphase Support.

The DNSPs have regulations to ensure the safe and reliable operation of the electricity distribution network. These regulations include limits on the amount of power that can be generated by small-scale solar photovoltaic systems to prevent damage to the network and ensure that the electricity supply remains stable.

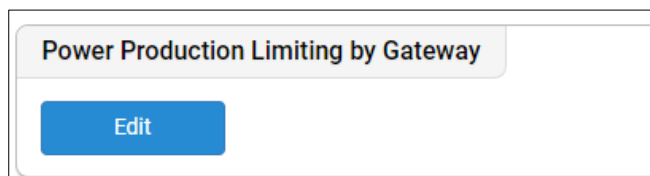
The specific limits on PV power production vary depending on the DNSPs and the location of the PV system, as factors such as the capacity of the local network and the amount of solar power being generated in the area can affect the limits. Typically, DNSPs will specify a maximum capacity for PV systems connected to their network (for example, 10 kVA of PV and Battery AC coupled capacity per phase). DNSPs may also restrict the amount of power exported back to the grid, known as export limiting, for example, 5 kW of export. PV system designers and installers need to understand and comply with the regulations set by their local DNSP to ensure their system is safe and reliable and to avoid potential penalties or other consequences for non-compliance.

Setting PV microinverter power production limiting

1. Log in to the Enphase Installer Portal account. Click the Setting icon on the intended site.



2. Scroll down and click the “Edit” button under “Power Production Limiting by Gateway”.



3. Set “Freely defined absolute value [W]” to the desired value of the export limit.

Power Production Limiting by Gateway

Limit power production via Gateway
 Limit power production/export via reading of relays settings on Gateway's Digital Input Port
 Disable Existing Settings

Power limitation target

Production
 Export

Reference value or absolute value

DC installed capacity [Wp]
 Freely defined absolute value [W]

Freely defined absolute value [W]

Slew Rate [W/sec]

Save

To set up the power limiting via the gateway’s digital input, refer to 050623 Tech Note Setting PV Power Production Limiting with Tesla Powerwall2.

To set up the power limit for IQ Battery or if you have any questions or require support, contact Enphase Support at (1800) 006-374 (AU), (09) 887-0421 (NZ), or email at support_au@enphaseenergy.com.

Setting grid power import limit as per main switch circuit breaker size using Enphase Installer Portal

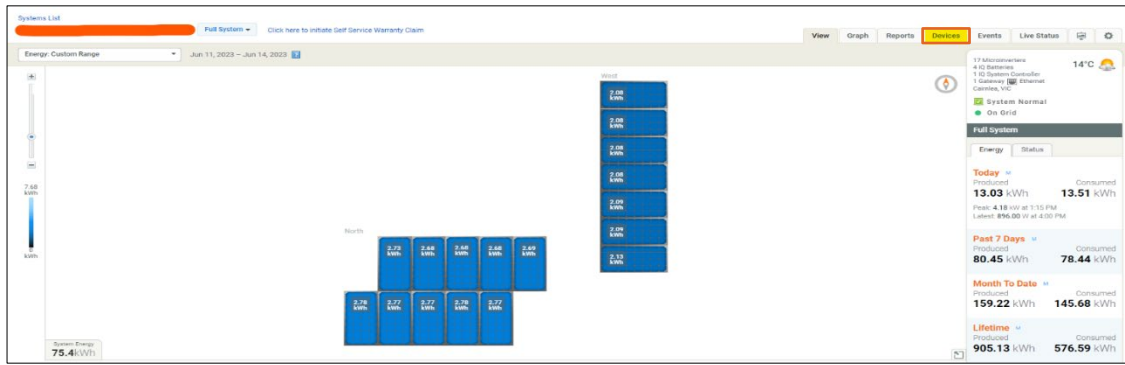
The Enphase Energy System with two or more batteries has a function for the batteries to be charged from the grid (for example, full backup Mode, storm guard, or the cheaper rate at night via time of use tariff). For such events, when batteries are charging from the grid, the current drawn by the batteries and loads might go above the main switch circuit breaker current value. In this case, we need to limit the current rating for the entire IQ System Controller as per the circuit breaker rating, which feeds the IQ System Controller (max 80 A).

Example: For the 63 A breaker feeding the IQ System Controller from the MSB, set the current limit of the IQ System Controller to 63 A.

Setting grid power import limit on IQ System Controller for IQ Battery

Follow the procedure to set Grid Power Import Limit on IQ System Controller for IQ Battery:

1. Log in to Enphase Installer Portal.
2. Click the “Devices” tab.



3. Click the “Gateway”. The IQ Gateway tab displays.

Name	Type	Connection	Cell Modem SKU Type	Cell Modem Plan End Date	Last Report	Status	IQ Battery Storage (Yes/No)
Gateway	800-00649-r01 (IQ Gateway)	Ethernet			06/14/2023 04:03 PM AEST	Normal	Yes

4. Click the “Storage System Power Limiting Edit” icon at the bottom of the page.

IQ Gateway
Software Version 8.2.18

Web Communication

✓ Connected to Enlighten
Last Report: Wed June 14, 2023 04:04 PM AEST

Report Setting

Standard
Typically reports data to Enlighten at least every 15 minutes during daylight hours.

Low-Bandwidth
Reports data to Enlighten four times per day.

[Save Report Setting](#)

Power Line Communication

✓ Good signal strength
Last Check: Wed June 14, 2023 03:48 PM AEST

17 Microinverters Detected

✓ 17 Communicating

✓ 17 Producing power

Tasks

[Check Signal Strength](#) - Check signal strength to measure the Gateway's communication with the microinverters – for example, if the Gateway has been moved or to determine the best location for the Gateway.

[Scan for New Devices](#) - Scan for new devices to detect additional microinverters for this system – for example if you've added modules or replaced an existing microinverter.

[Disable Power Production](#) - Power production is enabled on the microinverters communicating with this Gateway. [More Info](#)

Storage System Power Limiting [Edit](#)

IQ Battery generation limiting Disabled

IQ Battery power generation limit (in KVA) 0.5

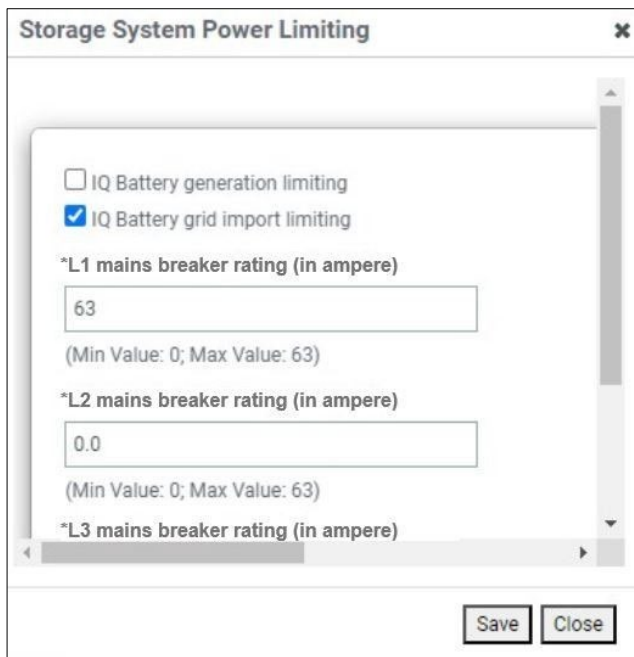
IQ Battery grid import limiting Enabled

L1 load breaker rating (in amperes) 40.0

L2 load breaker rating (in amperes) 0.0

L3 load breaker rating (in amperes) 0.0

- 4.1 Deselect “IQ Battery generation limiting” (for setting generation limiting, contact Enphase Support).
- 4.2 Select “IQ Battery grid import limiting”.
- 4.3 Add rating as per current rating that feeds the IQ System Controller or Max of 63 A. (for the multiphase site, fill in the same current rating for all phases).
- 4.4 Click the “Save” button.



Example:

- Set “L1 mains breaker rating (in ampere)” to 63.
- Batteries will charge from the grid at a rate such that the total current drawn by the loads and the batteries through the mains breaker is within the limit.

If you have questions, contact Enphase Support at (1800) 006-374 (AU), (09) 887-0421 (NZ), or email support_au@enphaseenergy.com.

Setting IQ Battery generation limit using Enphase Installer Portal

The IQ Batteries can limit the cumulative kVA output from the batteries using the generation limit.

Example: $4 \times \text{IQ Batteries} = 4 \times 3.84 \text{ kVA} = 15.36 \text{ kVA}$

This 15.36 kVA continuous power output can be set to DNSP allowed kVA rating, for example, 10 kVA maximum power output for all IQ Batteries on site.

To set the IQ Battery generation limit, contact Enphase Support at (1800) 006-374 (AU), (09) 887-0421 (NZ), or email support_au@enphaseenergy.com.

Revision history

Revision	Date	Description
TEB-00043-2.0	July 2023	Removed an example. Updated document revision date.
TEB-00043-1.0	July 2023	Initial release

© 2023 Enphase Energy. All rights reserved. Enphase, the e and CC logos, IQ, and certain other marks listed at <https://enphase.com/trademark-usage-guidelines> are trademarks of Enphase Energy, Inc. in the US and other countries. Data subject to change.