

Enphase Energy System commissioning using Enphase Installer App 3.X

Contents

- Applicable countries 2
- Overview 2
- Preparing for commissioning..... 2
- Commissioning instructions..... 6
- Commissioning process..... 6
 - Decommissioning an IQ Battery/IQ System Controller while replacing it onsite 23
- Configuring Sunlight Backup..... 24
 - Reference documents for Sunlight Backup 24
 - Key commissioning steps 24
 - Post-commissioning steps 26
- Provisioning Enphase Energy System with multiple IQ Gateways 27
- Commissioning 3rd-generation Enphase Energy System..... 29
 - Prerequisites 29
 - Commissioning steps 29
- Known issues and limitations 32
- Features for troubleshooting the system..... 33
- Revision history 34

Applicable countries

- United States of America
- Puerto Rico
- Canada
- Mexico

Overview

This document is intended for Enphase Energy System certified installation professionals commissioning Enphase Energy System in the field. Follow the steps below to establish successful communication between Enphase Energy System components and validate that the system operates as designed.

Preparing for commissioning

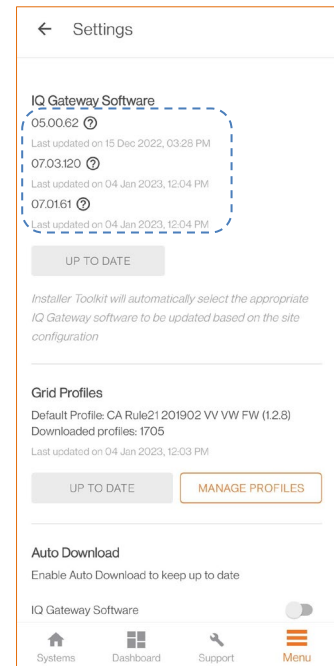
The following process assumes that the Enphase Energy System has been installed in a code-compliant manner, tested for appropriate voltages, and is ready to be energized.

- Read and follow all warnings and instructions in the Enphase Quick Install Guides and Installation Manuals for all products.
- Enphase Energy System is commissioned using the Enphase Installer App. Ensure the Enphase Installer App is updated to version 3.X or later.



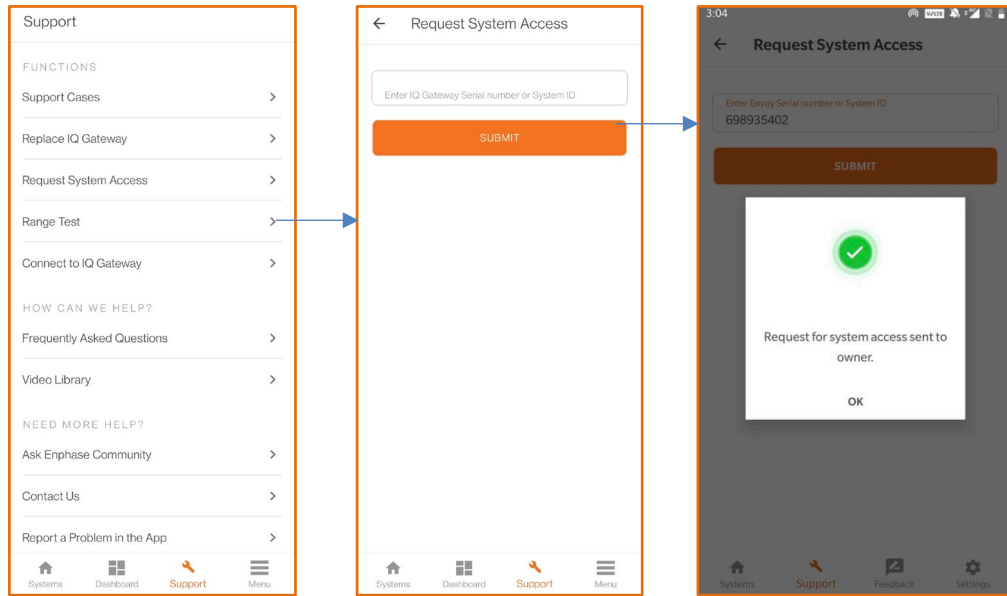
- You can install the Enphase Installer App using the following links:
 - [iOS](#)
 - [Android](#)
- Enable Bluetooth communication on the smartphone or tablet you use for commissioning.
- Turn OFF automatic sleep mode on your smartphone or tablet. This prevents your phone from falling asleep and interrupting the IQ Gateway firmware upgrade.
 - In iOS, this setting is called “Auto-Lock” and can be changed to “Never” under “Display & Brightness”.
 - In Android, this setting is called “Screen saver” or “Screen timeout” and can be changed to “Never” under “Display settings”.
 - After the commissioning is complete, you can reset the automatic sleep mode.
- Ensure you have the latest version of the Enphase IQ Gateway software.
 - 7.3.XX for commissioning grid-forming IQ8 Microinverters.
 - 8.XX for 3rd generation Enphase Energy System.
 - Create a system activation before commissioning if the activation does not exist. However, an activation should already exist if you commission an M Series site.
- To create a site, do this beforehand using the Enphase Installer Portal or onsite using the Enphase Installer App.
 - Create an activation beforehand to save time in the field.
 - If completing the activation onsite, ensure the Enphase Installer App has internet access (cell signal or Wi-Fi).

- Before visiting the site, ensure the latest IQ Gateway software has been downloaded to the phone.
 - The Settings tab in the Enphase Installer App has an IQ Gateway Software section with an **Update Now** button to download the latest IQ Gateway software.
 - You can see three versions of the IQ Gateway software. The Enphase Installer App automatically selects the correct version for the Enphase Energy System for M Series and PV-only sites.
 - A stable Wi-Fi connection is required to download the software successfully. Do not move the phone around or step out of the Wi-Fi range while downloading the software.
 - If an activation does not exist, create an activation using the Enphase Installer App 3.X or the Enphase Installer Portal.
 - If your existing IQ Gateway is not connected to the internet, you can either connect it to the Internet or provision all microinverters onsite to the new IQ Gateway.
 - If your existing IQ Gateway is connected to the internet, you must associate the IQ Gateway with the new activation.
- Access the site through the Enphase Installer Portal and confirm hardware requirements:
 - Only IQ8, IQ7, IQ6, M250, and M215 Microinverters are compatible with the Enphase Energy System.
 - M250 and M215 Microinverters cannot be installed within the same microgrid as IQ Series Microinverters.
 - M Series Microinverters need an Envoy-S Metered.
 - IQ Series Microinverters need an IQ Gateway.
- Only for an M Series site:
 - Ensure the expected quantity of microinverters can be seen. This can be done through the Enphase Installer Portal or the Enphase Installer App. For more information, see [Enphase Installer App Step 2: Devices & Array](#).
 - Before onsite commissioning, download the M Series Microinverter firmware to the devices onsite by visiting the activation page in the Enphase Installer Portal and tapping **Make this M-Series site Ensemble compatible**.

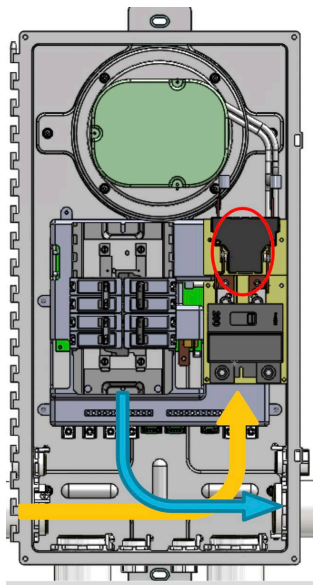


- Before visiting the site, view the activation page to confirm that the firmware has been downloaded. If the activation page shows “Status: Request Completed”, the download was successful.

- If you are not the original installer of the system, you must be granted access to the activation as a system maintainer. For an M Series site, get the access before the installation so that the new firmware can be pre-downloaded to the site, saving time during commissioning. To request system access:
 - Go to **Support > Request System Access**.
 - Enter the Envoy serial number and submit the request.
 - An email is sent to the homeowner to provide access to the site.
 - If you do not receive access, contact Enphase Support for more help. Contact Enphase Support at [\(877\) 797-4743](tel:8777974743) or <https://enphase.com/en-us/support/contact>.



- **[Not required if you are installing IQ System Controller 2]** The best practice is to disable manual override before the IQ System Controller has been wired or energized. To do this, remove the IQ System Controller dead front to access the grey MID toggle switch at the middle right side of the IQ System Controller.
 - Press the MID toggle switch to the right at approximately five degrees. Manual override on the IQ System Controller is disabled.
 - If your IQ System Controller is already energized, a manual override can be cleared with software before [Enphase Installer App Step 5: Validation](#).



- **Informative notes:**
 - IQ Batteries ship with approximately 30% state of charge (SOC).
 - IQ Batteries ship with “Self-Consumption” as the default mode.
 - Supply AC power to IQ Batteries and wait for a message on the Enphase Installer App to turn ON the DC switch (do not turn ON the DC switch before the Enphase Installer App prompts).

- If IQ Batteries arrive in a very low SOC, they can be commissioned if they are connected to the AC side. The batteries start charging by setting them to “Full Backup” mode after they are commissioned. IQ Batteries’ housekeeping supply gets power from the AC supply during commissioning, and they can communicate with the IQ Gateway. Charging in Full Backup mode starts only after the IQ Battery is commissioned.

Commissioning instructions

Date and time of commissioning: _____

Address: _____

System being commissioned: _____

Installer: _____

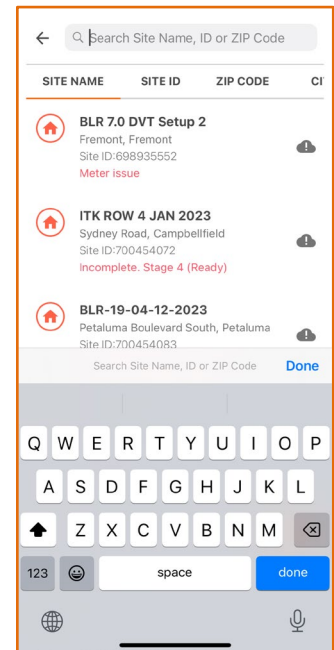
Individual (name and email) overseeing commissioning:

- Perform the following steps and mark the completed steps in the boxes on the page's left side.
- Initial the bottom of each page, indicating all steps on that page are complete.

Commissioning process

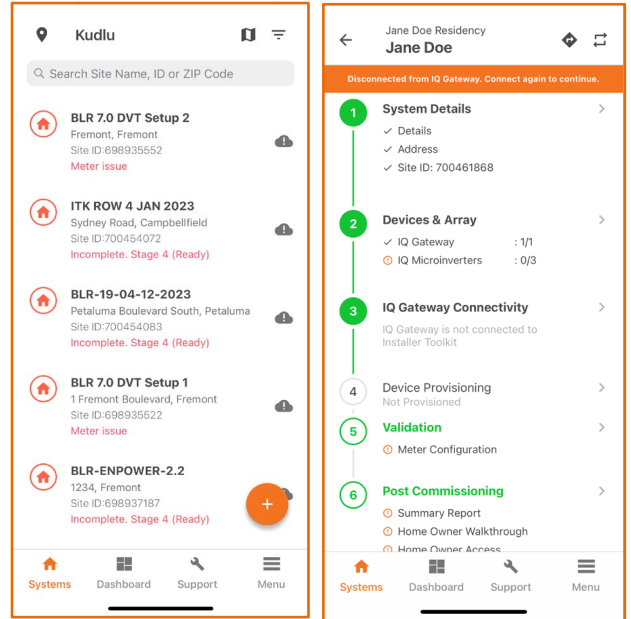
A. Enphase Installer App Step 1: System Details.

1. Open the Enphase Installer App. Tap the **Systems** tab on the lower left screen.
2. If an activation has already been completed using the Enphase Installer Portal, the installer can search the site in the Enphase Installer App using the Site Name, Site ID, ZIP Code, City, Installer reference, or IQ Gateway Serial number.



3. If an activation has not been completed using the Enphase Installer Portal, complete Step 1 in the Enphase Installer App (input system details including address, and so on).

- a. Tap on the previously completed system activation when installing the Enphase Energy System on an existing M Series or IQ Series site.
- b. Only for an M Series site with a legacy Envoy, select the appropriate grid profile for your region by going to IQ Gateway under Devices and Array (Step 2). An existing M Series activation with a legacy Envoy will not select a grid profile.
- c. Go to Enphase Installer App Step 1 and tap **Edit**.
- d. Go to **Installation Details** and enter the following details if available:
 - Contract Signed Date
 - Permit AHJ
 - Permit Application Date
 - Permit Approval Date
 - Hardware Installation (Begin) Date

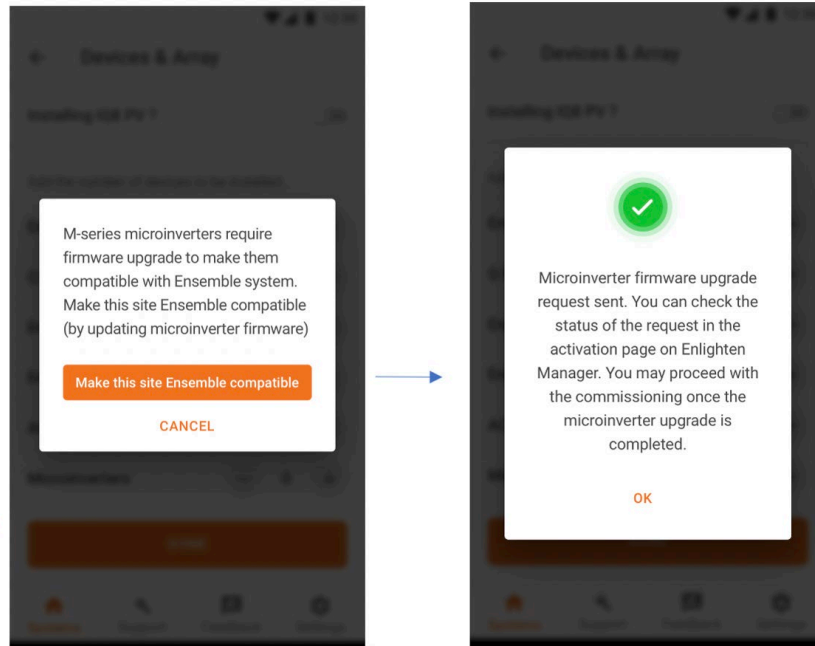


NOTE: These dates are shown to the homeowner on the Enphase App.

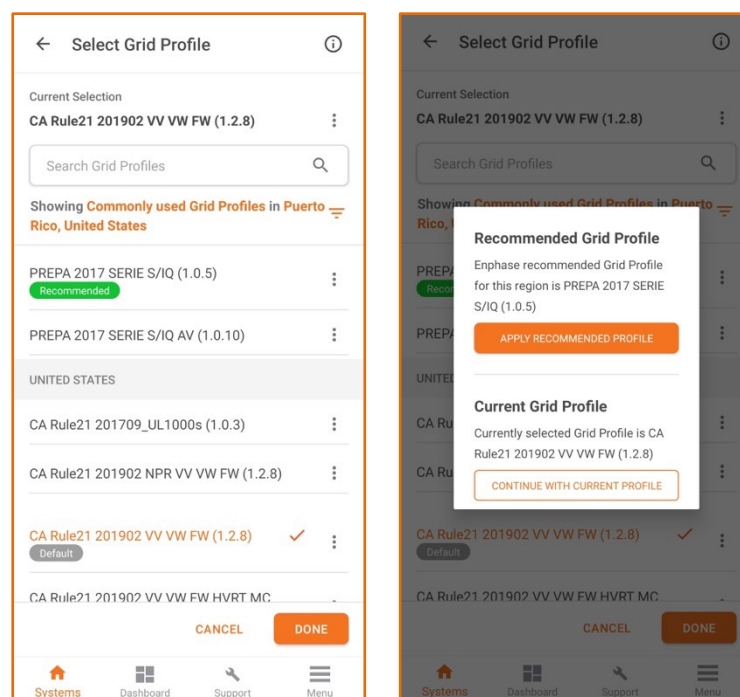
Replace a legacy Envoy with Envoy-S Metered for M Series Enphase Energy System installations (only for M Series Enphase Energy System).

B. Enphase Installer App Step 2: Devices & Array.

1. Enter the total count of each device type to be added to the system.
2. If the M Series Microinverter firmware pre-download is unsuccessful, the user is blocked from moving forward at this step. Select **Make this site Ensemble compatible**. Track the status of the firmware upgrade on the activation page of the Enphase Installer Portal using the steps outlined in the [Preparing for Commissioning](#) section of this document to download the M Series Microinverter firmware.



3. If your activation has or will have multiple IQ Gateways, go to [Provisioning Enphase Energy System with multiple IQ Gateways](#). Some situations require splitting the system with more than one IQ Gateway per site/system ID. Examples include systems where the PV exceeds the allowed PV-to-storage ratio, microinverters incompatible with Enphase Energy System, and so on. You can refer to the [Enphase Energy System Planning Guide](#) for details on PV-to-storage ratios, compatible microinverters, and other aspects of system design.
 - a. You must scan the IQ Gateway and select the appropriate grid profile for the system. Grid profile selection has been improved by adding labels to identify recommended and default profiles. Additionally, when the installer’s selection differs from the recommended grid profile for a location, a prompt message is displayed to select the recommended profile.



- b. Using a mobile device's camera, you must scan the IQ System Controller and IQ Battery unit's serial number barcode. In contrast, PV microinverters can use a power-line scan. The power-line scan option can be found under the IQ Gateway details page in the Enphase Installer App.



NOTE: Ensure you have selected the right Enphase Energy System grid profile. If not, go to the IQ Gateway detailed screen to modify the grid profile chosen.

- c. When adding the IQ System Controller, select the backup type for the system. Select one of the following options:
- Partial home backup (Consumption CT placed between IQ System Controller and the main panel).
 - Partial home backup (Consumption CT placed between the utility service and the main breaker)
 - Whole home backup
- If you are backing up any large motor loads, it is recommended to use a soft starter. You should scan the PV microinverter barcode using a mobile device's camera because a power-line scan can "poach" an incorrect serial number from a nearby site.



NOTE: The LED status indicator and SOC in the Enphase Installer App are accurate after the IQ Gateway software is updated at the end of the IQ Gateway connectivity.

- d. Energize the Enphase Energy System equipment in the following order:
- i. Ensure the IQ Gateway and PV branch circuit breakers are turned ON in the IQ Combiner or AC Combiner panel.
 - ii. Ensure the AC Combiner, autotransformer, and IQ Battery breakers are turned ON in the IQ System Controller.
 - iii. First, turn ON the AC Combiner, then the autotransformer, then the IQ Battery breaker.
 - iv. For all IQ Battery units, ensure the DC disconnect switch is turned OFF, then power ON the IQ System Controller by turning ON the utility breaker and any breakers on the line side of the IQ System Controller.
 - v. Local jurisdiction may require battery AC disconnects. If one is present, turn ON the switch.
 - vi. Wait 60–330 seconds for the microgrid interconnect device relay to close.



DANGER: Risk of electric shock. When energizing the equipment, check that IQ Battery units are correctly wired as prompted. Miswiring can result in a safety hazard. Ensure the IQ Battery ground connection does not have an L1 or L2 connection, which introduces a safety hazard.

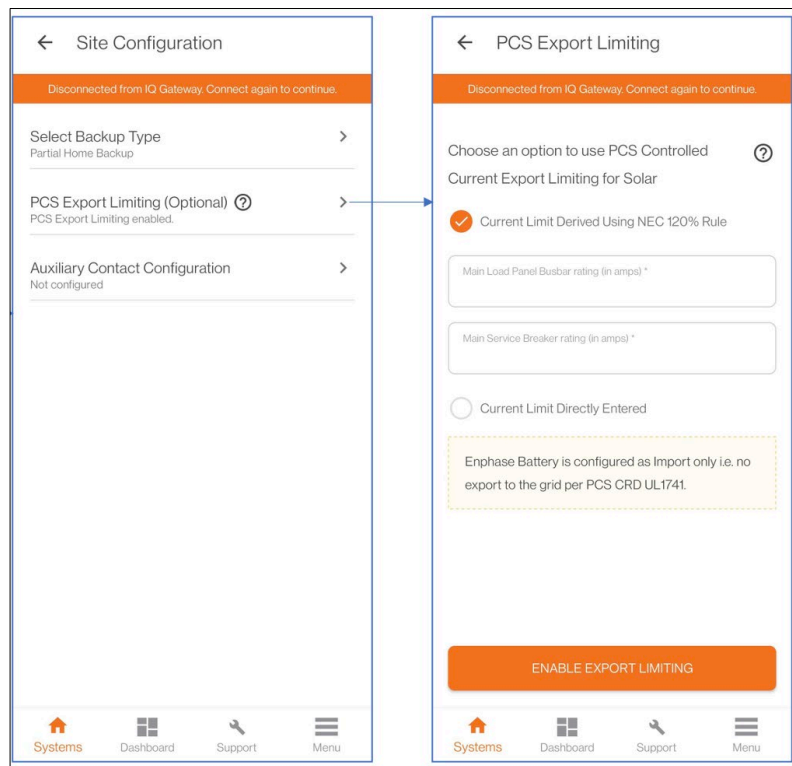
- e. To check the correct wiring, follow these steps:
- i. Ensure AC power is supplied to the IQ Battery. Ensure the AC breakers inside the IQ System Controller and between the IQ System Controller and the IQ Battery are closed (if there is a battery combiner panel).
 - ii. Using a voltmeter, measure the IQ Battery chassis metal to the ground (for example, grounded conduit) and ensure no AC voltage source is present. If there is incorrect wiring, a ground fault may exist, and the AC voltage may read ~120 VAC. If voltage is

present, DO NOT touch the chassis. Remove AC power from the IQ Battery circuits and turn OFF the DC switch on the IQ Battery.

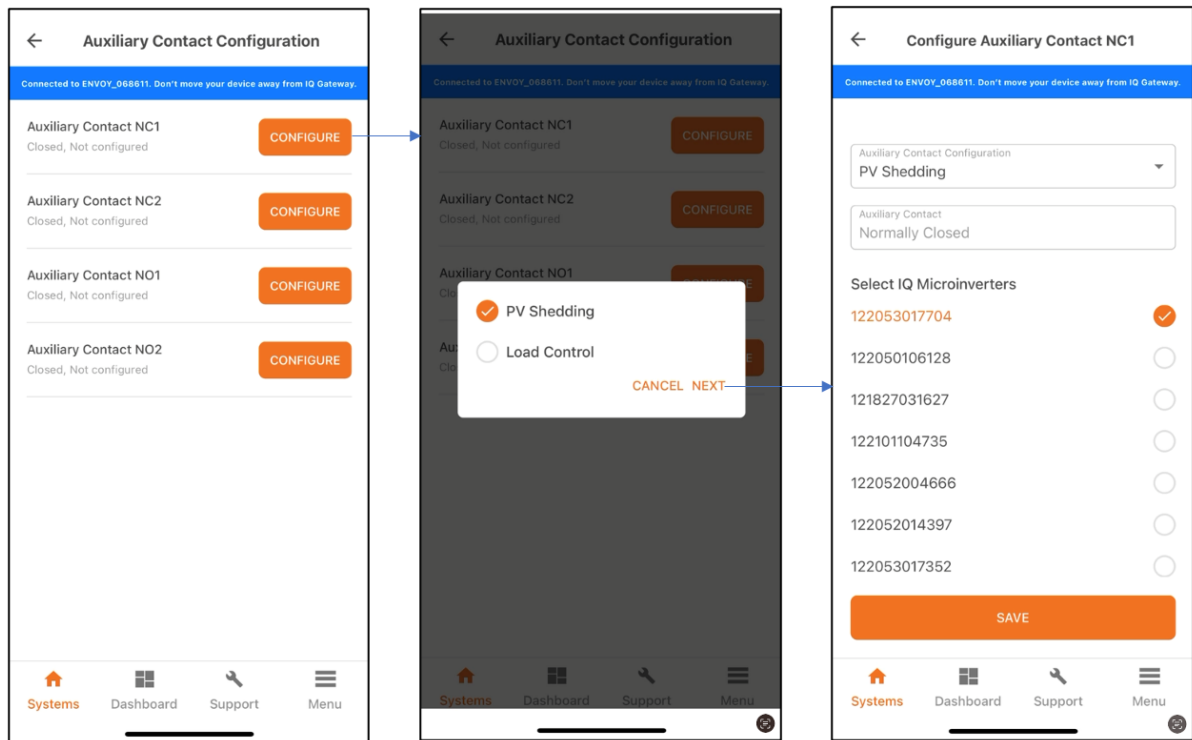
- iii. Correct the wiring before proceeding, ensuring all AC sources are removed.
- iv. Ensure DC switches are turned OFF on all IQ Battery units.

Important note: Skip the optional Step 2b (in the Enphase Installer App) if you are not interested in configuring Load Control or enabling export limit for your solar.

- 4. To configure Load Control and PCS, go to Step 2b (in the Enphase Installer App).
 - a. The PCS Export Limiting option under Site Configuration is available only for a system with partial home backup (Consumption CT placed between IQ System Controller and the main panel).
 - b. To enable PCS, do one of the following options:
 - Select **Current Limit Derived Using NEC 120% Rule** and enter breaker details.
 - Select **Current Limit Directly Entered** and enter the export limit.

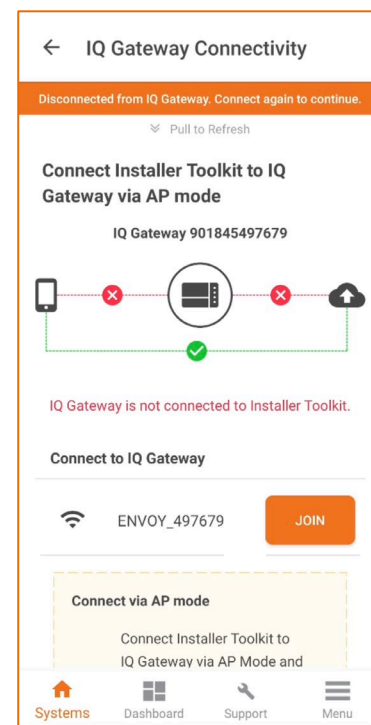


- 5. If you commission a Sunlight Backup-only system, refer to Configuring Sunlight Backup.
- 6. To configure Load Control or PV shedding, select **Auxiliary Contact Configuration** and enter the details.
 - For PV Shedding, select the microinverters part of the branch circuit connected to the auxiliary contact.
 - To configure off-grid behavior for Load Shedding, enter the load name and smart control.



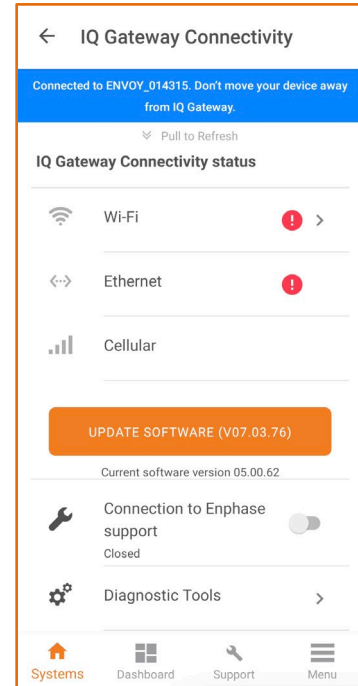
C. Enphase Installer App Step 3: IQ Gateway Connectivity.

1. The screen indicates your phone's connectivity to the web and the IQ Gateway. Your phone should be shown as connected to the web rather than to the IQ Gateway.
2. To provision devices, connect to the IQ Gateway using AP mode.
3. On the IQ Gateway, press the AP mode button (first button from the left) for about one second. The LED glows solid green.
4. Go to your phone's settings and connect to IQ Gateway's locally broadcasted network.
5. The available Wi-Fi networks show as IQ GATEWAY_____, with the appended digits being the final numbers of the IQ Gateway serial number. Tap this network to connect.
6. After connecting, the Enphase Installer App shows your phone connected to the IQ Gateway but not to the web.
7. You can connect directly to the IQ Gateway AP network mode from the Enphase Installer App without going to phone settings by the following method:
 - a. Tap **Join** adjacent to the IQ Gateway on the **IQ Gateway Connectivity** page.
 - b. Tap **Switch on Wi-Fi** in the pop-up window. Alternatively, the installer can connect to the IQ Gateway using the button in the banner. If there are issues connecting to this network, turn AP mode OFF and ON by repeating steps 2 through 5.
8. Configure the IQ Gateway with Wi-Fi or Ethernet connectivity. You must input network and password information in the Wi-Fi section. If connecting using Ethernet, plug the cable into the IQ Gateway. The user is blocked from provisioning the gateway if Ethernet/Wi-Fi is not connected.

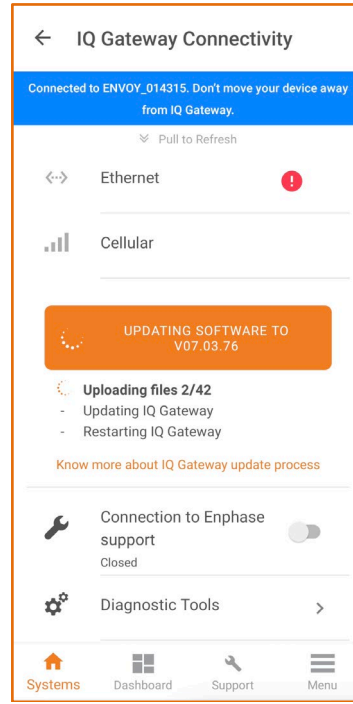
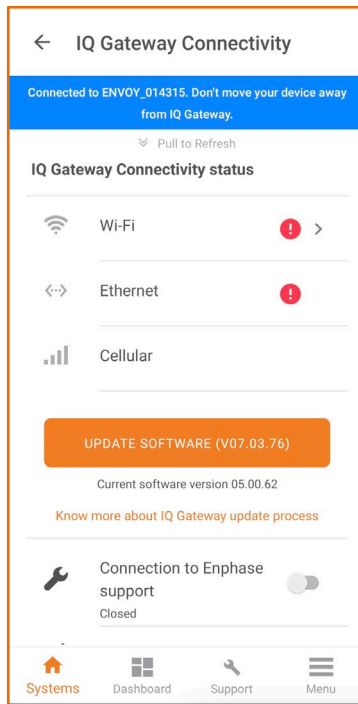


9. Before device provisioning, ensure the IQ Gateway has software version 7.3.120 (or later) installed for the Enphase Energy System.

- a. Tap **UPDATE SOFTWARE** to complete this process (it takes approximately 30 minutes).
- b. Ensure the phone is close to the IQ Gateway, and do not move the phone away while upgrading the IQ Gateway. Moving the phone away from the IQ Gateway could result in problems during the IQ Gateway upgrade.
- c. Your phone screen must stay active while this update occurs. Allowing your phone to go to sleep interrupts the update.
- d. Ensure you are not connected to the IQ Gateway in AP mode with more than one Android/iOS device.
- e. After the IQ Gateway firmware update, IQ Gateway restarts.
 - When the IQ Gateway restarts, all four LEDs flash red together.
 - After the restart is complete, the network communications LED glows solid green.
- f. When the IQ Gateway reboots, your phone loses AP mode connectivity. After the IQ Gateway has rebooted successfully, reconnect to IQ Gateway AP mode in the Wi-Fi settings menu of your smartphone or tablet.
 - If you have issues connecting to AP mode, turn OFF AP mode on the IQ Gateway by pressing the AP mode button for one second, and then “forget” the AP mode network in your smartphone or tablet Wi-Fi settings.
 - Repeat steps 2 through 4 of this section to reconnect to the IQ Gateway.
- g. Configure Wi-Fi or Ethernet in the IQ Gateway Connectivity screen. Enphase Energy System installations must have a cellular modem set to remain always connected. Ensure the Enphase Mobile Connect modem (LTE-M cell modem) is plugged into the USB terminals of the IQ Gateway.
- h. After rebooting, the Enphase Installer App takes approximately 10 minutes to correctly display system metrics (including web connectivity). The IQ Gateway requires communication to the web to display internet connectivity. Ensure the IQ Gateway Wi-Fi access is configured, or the Ethernet and cell modem connections are established.
- i. If, after completing the previous step, the IQ Gateway software version shown on the UPDATE SOFTWARE button does not match the IQ Gateway software version shown below the button, then the upgrade has failed, and you must tap **UPDATE SOFTWARE** again.



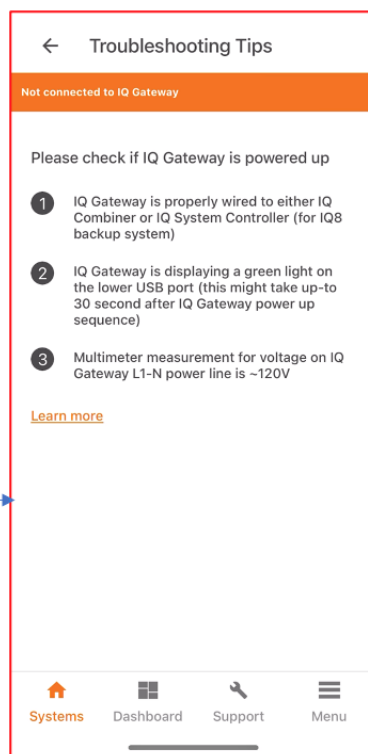
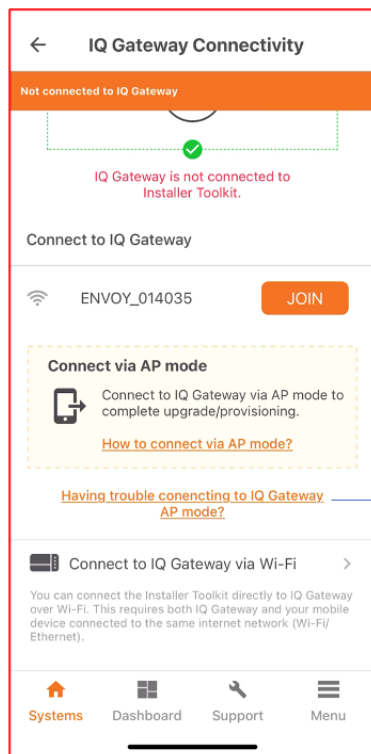
NOTE: The Enphase Installer App shows the IQ Gateway update progress on the main screen without scrolling.



10. Tap **Start Provisioning Devices** at the bottom of the IQ Gateway Connectivity screen.



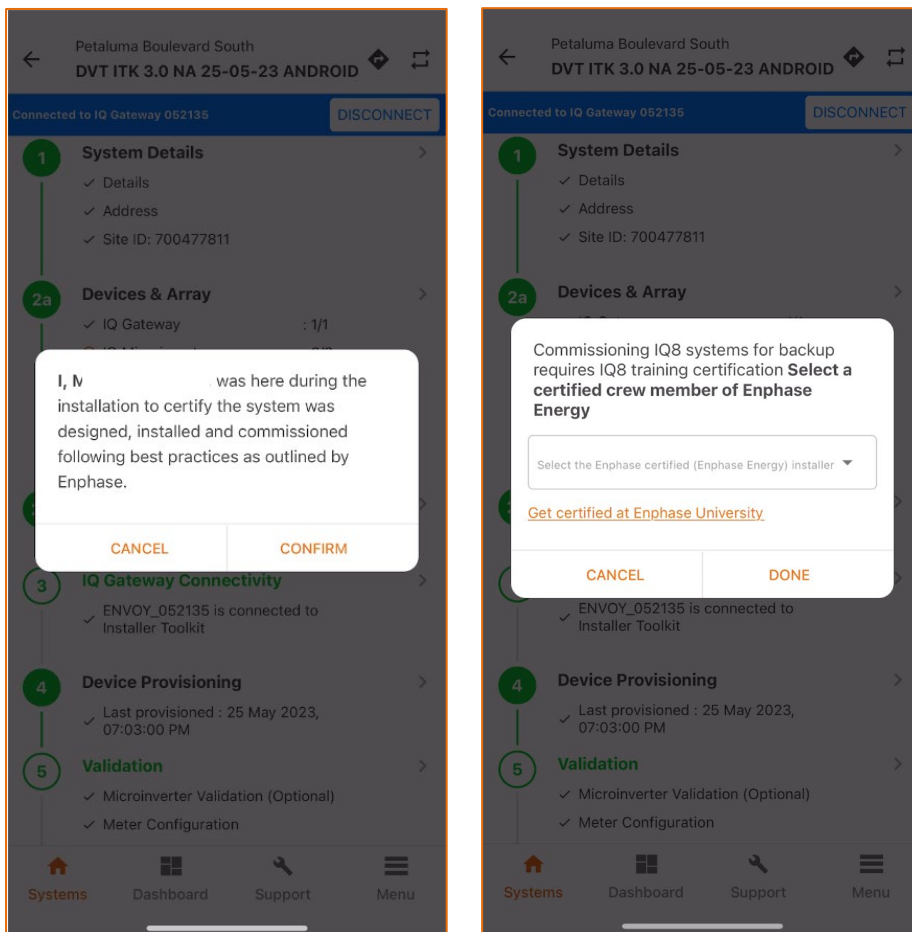
NOTE: When a mobile device encounters difficulty connecting to an IQ Gateway in AP mode, use the step-by-step troubleshooting guide in the app.



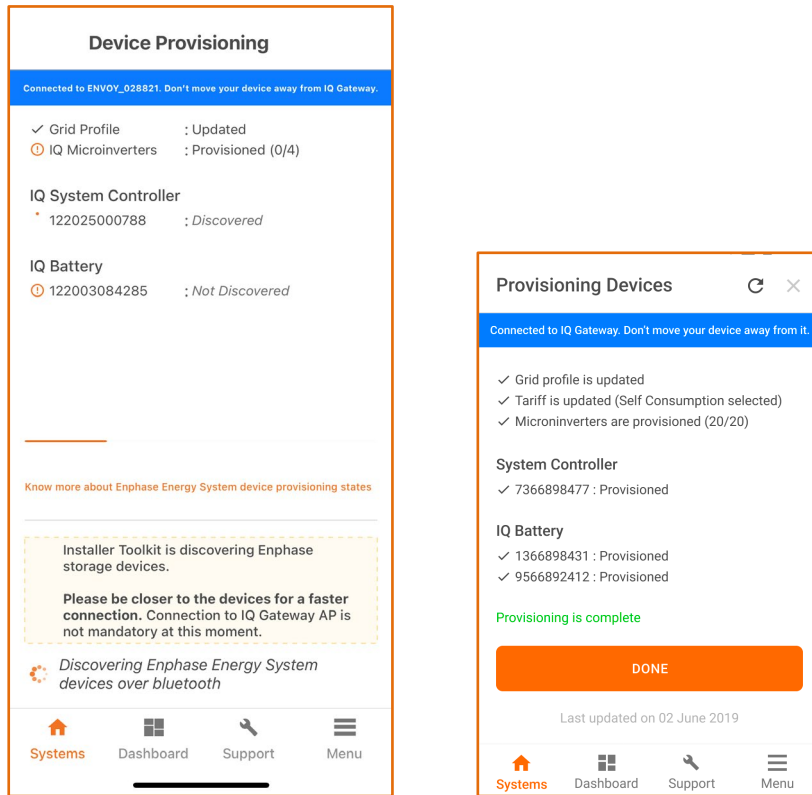
D. Enphase Installer App Step 4: Provisioning Devices.

1. You must be Enphase Energy System training certified to provision Enphase Energy System devices. You can select a certified user from the list of users if you are not certified.
2. Before provisioning, retire any existing IQ Gateways. Call Enphase Support to retire the old IQ Gateway.

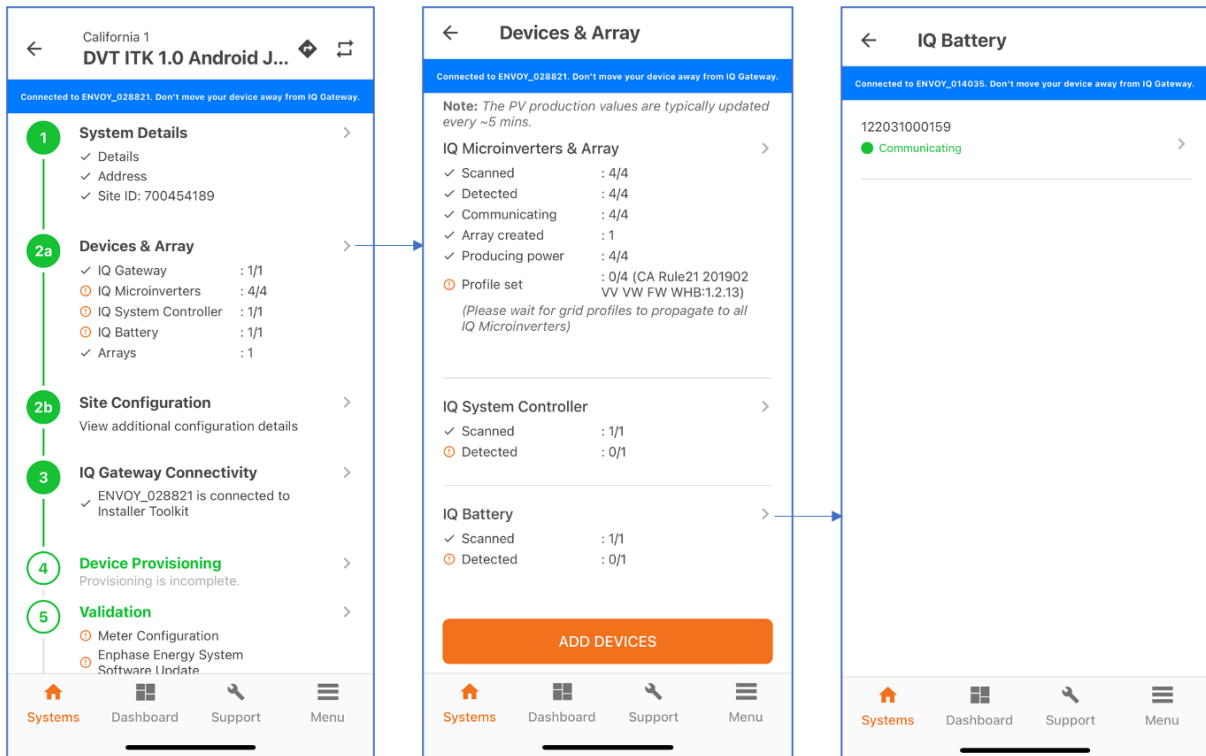
3. Ensure the Enphase Energy System Communications Kit or COMMS-KIT-01 is plugged into the IQ Gateway’s left USB port.
4. Ensure the Enphase Mobile Connect cell modem is plugged into IQ Gateway’s right USB port.
5. Device provisioning is unsuccessful if:
 - COMMS-KIT-01 is not plugged in
 - Cell modem is not plugged in
 - IQ Gateway is not connected to Wi-Fi or Ethernet
6. For a 3rd-generation system, ensure the CTRL headers are correctly installed. For best practices regarding CTRL cable, refer to [Critical updates and best practices for installing and commissioning Enphase Energy Systems.](#)



7. The Enphase Installer App begins provisioning all devices, which takes approximately three to six minutes.
 - The grid profile is updated.
 - The tariff is updated only if the single rate is set in the Tariff module.
 - The PV microinverters are provisioned.
 - The IQ System Controller is provisioned.
 - The IQ Battery microinverters are provisioned.



8. Confirm that the IQ Batteries communicate with the IQ Gateway by checking the Enphase Installer App Step 2: Devices & Array. The IQ Batteries should display “Communicating” as follows.



9. In the Enphase Installer App, LED status and state of charge display accurately.

10. For very early installations, a known issue may interfere with LED status and may cause the state of discharge to display inaccurately. Firmware versions later than 20.25 do not have this issue.
11. If the IQ Batteries are not communicating with the IQ Gateway, power cycle the batteries. For information about power cycling, refer to [Critical updates and best practices for installing and commissioning Enphase Energy Systems](#).

E. Enphase Installer App Step 5: Validation.

The meters are disabled by default after installing the IQ Battery and IQ System Controller. Configure Production and Consumption CTs using the meter wizard.

1. Verify that the configuration matches the installation (partial vs. whole home backup and the location of CT).
2. Enable the meters by verifying the readings by going through the meter wizard.
3. In the production meter wizard, switch OFF all PV breakers (microgrid and non-microgrid) as instructed to ensure the readings go to zero before enabling.
4. In the consumption meter wizard, turn ON the PV and a known load in the home to confirm consumption rises as expected, and select the meter location. Select one of the three options:
 - Partial backup: Consumption CT between the IQ System Controller and main load panel
 - Partial backup: Consumption CT between the main load panel and utility meter
 - Whole home backup



WARNING: Do not place the Consumption CT on the load side of the IQ System Controller. It should always be on the grid side.

5. After the meters are configured correctly, you can see if the IQ Batteries are charging or discharging in the Devices section of the Enphase Installer App.

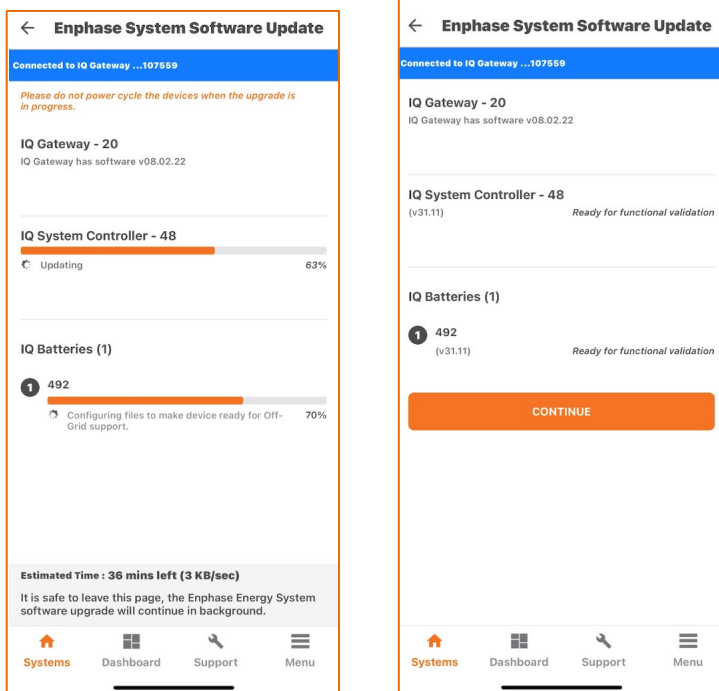


NOTE: If you have added a generator, you must enable the generator meter using the wizard by going off-grid and ensuring the meter readings are accurate.

6. Upon successful completion of provisioning, essential software updates are completed in the system:
 - a. The IQ Gateway automatically starts system configuration updates.
 - b. IQ Gateway automatically updates the IQ System Controller software if the IQ System Controller software version is less than 20.34. This update will be complete in less than an hour.
 - c. If you have PV/load shedding configured or a generator, the IQ System Controller software is updated to 21.19.
 - d. You can go to Step 5: Validation (in the Enphase Installer App) to configure production and consumption meters when the IQ System Controller software update is in progress.

Important note: If you forgot to disable the manual override on the IQ System Controller before commissioning, the Enphase Installer App prompts you to disable the manual override.

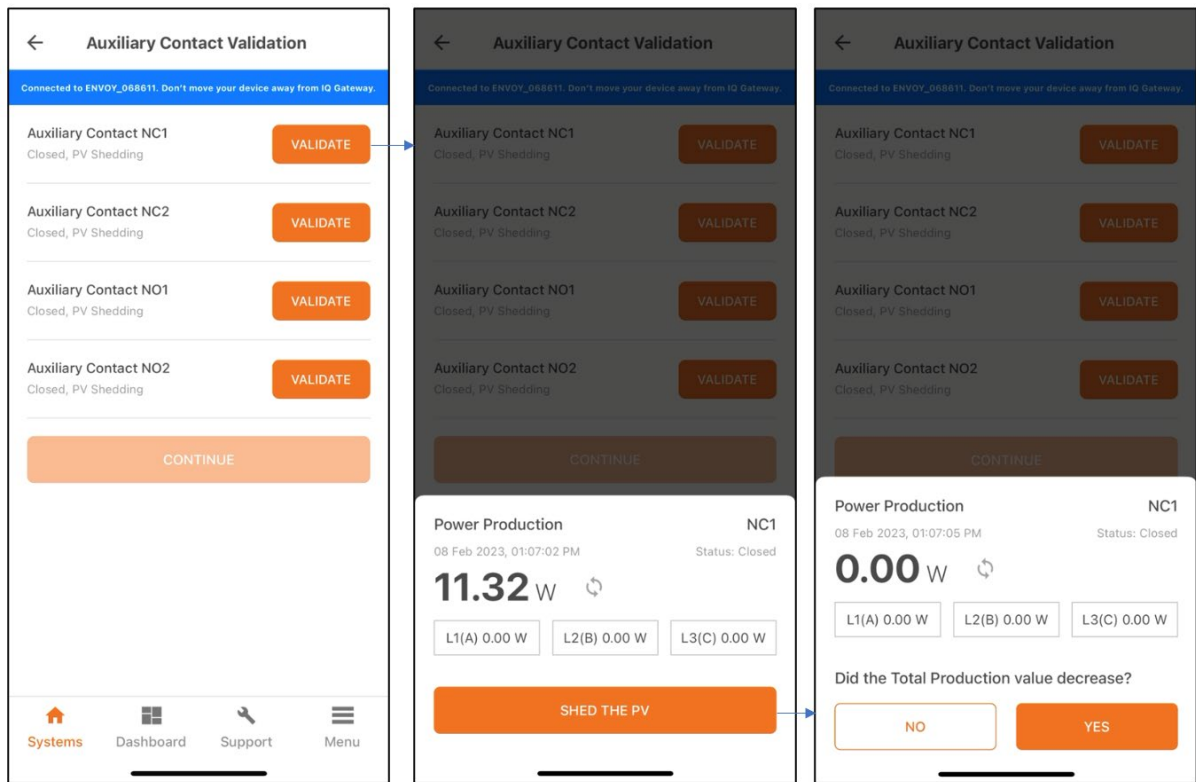
- e. The IQ System Controller software update will be in progress if the update is required for the system (see the image below). If the update is in progress, wait for it to be completed.
- f. After the IQ System Controller software update is complete, a **NEXT** button appears at the bottom of the **Ensemble Software Update** screen. It is recommended to skip this step because updating the IQ Battery units can take 6-12 hours.
- g. The IQ Battery software update starts after functional testing and the commissioning process is completed.
- h. You can now get real-time status of storage device software updates. The Enphase Installer App displays the update speed and accurate intermittent device status.



- i. **(Only if you have configured Load Control)** You can validate the Auxiliary contact configured earlier using the **Auxiliary Contact Validation** option under the Validation step. Select **VALIDATE** for each auxiliary contact and confirm that the IQ Gateway sheds the load or the PV.
- j. Start functional validation under Step 5: Validation (in the Enphase Installer App). This will guide you through testing your client’s IQ Battery system to ensure it behaves as expected during grid transition events.

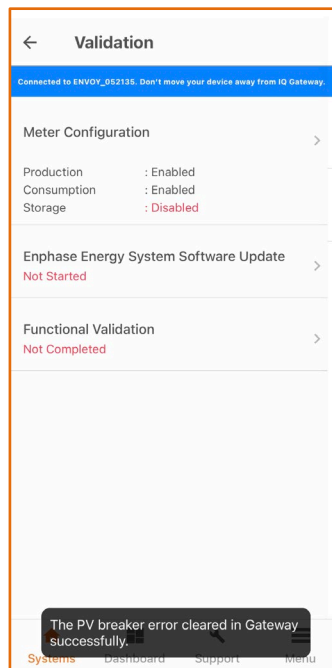


NOTE: You can see the auxiliary contact state during validation to provide better assistance during commissioning.



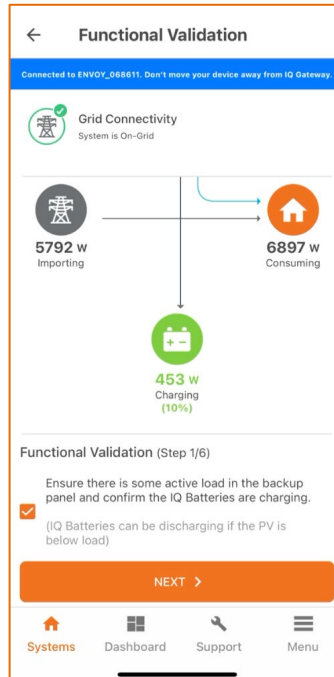
k. For functional validation, follow these steps:

- i. Installers get errors and steps for rectification if a PV breaker is turned OFF in the IQ System Controller.

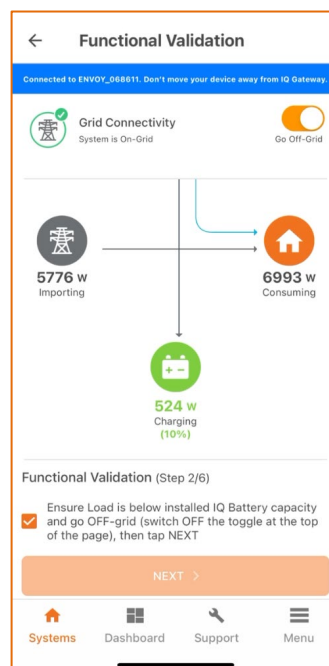


- ii. Battery Mode in Self-Consumption: After functional testing, the battery mode is changed to Full Backup mode automatically by the Enphase Installer App to bring the state of charge to 100%.
- iii. On-grid functional testing: Ensure the Enphase Energy System is operating in an on-grid state. Confirm this by measuring the voltage between the line and load sides of

the IQ System Controller smart switch microgrid interconnect device. If it is on-grid, the voltage is 0 V from L1 to L1. If it is off-grid, the voltage is 120 V from L1 to L1.

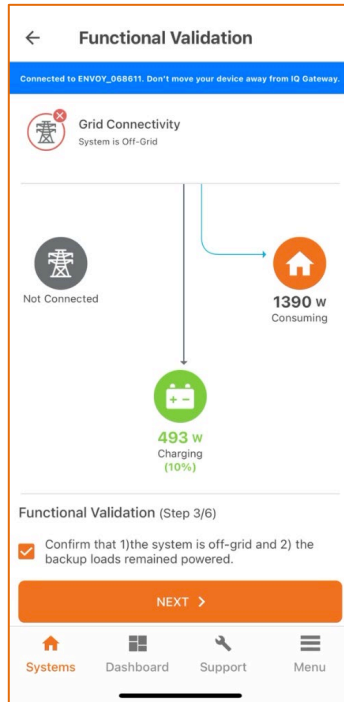


- The Enphase Installer App and Enphase Installer Portal **Live Status** have a button that allows the Enphase Energy System to transition between on-grid and off-grid modes.
- With backup loads operating, turn OFF power from the grid using this button in the Enphase Installer App or Enphase Installer Portal.
- Wait approximately 45 seconds for the microgrid interconnect device (MID) to open. You hear a click when this occurs.



- Confirm that the microgrid is operational and loads did not drop. Do this by observing the loads and testing for voltage at the backup panel.

- Check that the **Live Status** interface in the Enphase Installer App shows off-grid.
- Ensure the loads stay powered ON for two minutes or more.



- I. Turn ON additional loads in the backup panel and wait for 60 seconds.



- m. To switch between off-grid and on-grid modes, use the Enphase Installer App or Enphase Installer Portal.
- n. With the system still operating in off-grid mode and loads still operating, restore power to the grid using the Enphase Installer App or Enphase App Live Status button.



- o. Wait 60 to 330 seconds for the microinverters to restart (depending on the grid profile). You should hear the click of the microgrid interconnect device relay closing inside the IQ System Controller.
- p. Check and confirm that the system is now operating on-grid. Observe this in the Enphase Installer App **Live Status** interface.
- q. Check and confirm that the system is now operating on-grid. Observe this in the Enphase Installer App **Live Status** interface.

After the functional validation, if the IQ Batteries and IQ System Controller require a firmware update, the IQ Gateway updates them automatically.



- r. The battery mode of the system is also set to Full Backup profile by the Enphase Installer App.

After the batteries charge to 100% and remain there for one hour, the installer or homeowner can set the full-time operating battery mode (Self-Consumption, Savings, or Full Backup). This can be changed in the settings of the Enphase Installer Portal or Enphase Installer App.

F. Enphase Installer App Step 6, Post Commissioning. Generate a Summary Report.

- You can share this report using email, text, or Airdrop. It contains details of each provisioned device and the commissioned status of the system.
- After completing the summary report, a Homeowner Walk-through pop-up window is shown. Ensure all the topics mentioned in the pop-up are discussed with the homeowner before leaving the site.



NOTE: Before leaving the site, ensure all breakers feeding the IQ Battery and PV system are closed (if permitted by the utility).

With the previous steps complete, setting expectations about how many loads a homeowner should use during an outage is essential.

Different states of IQ Batteries

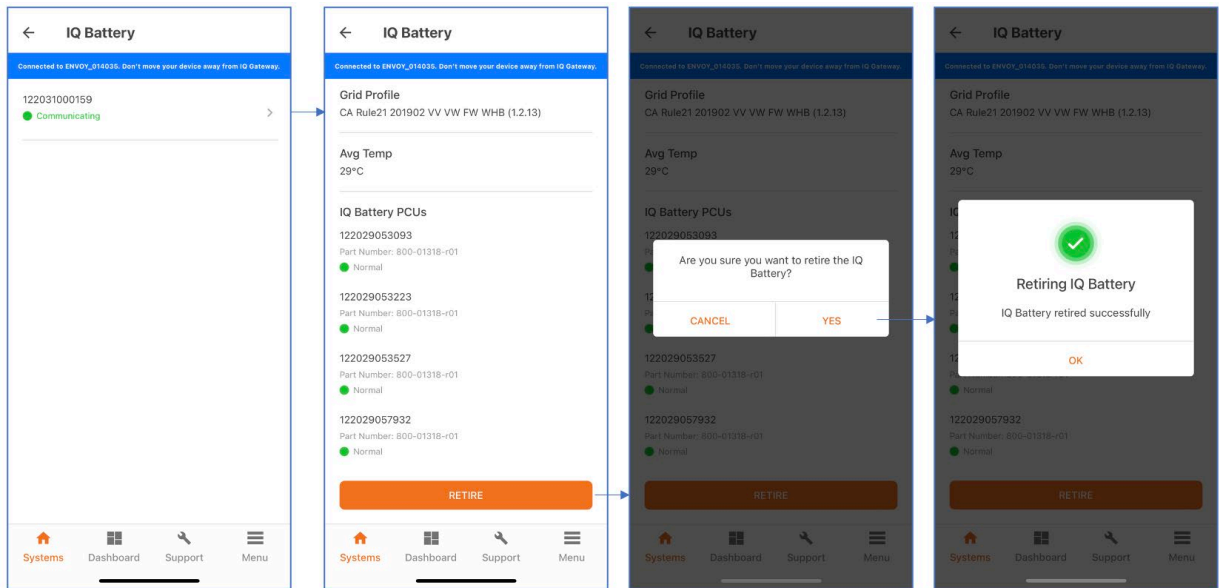
State	Description
Uncommissioned	
Flashing blue	After booting up, when IQ Battery has paired with an IQ Gateway but has not passed the commissioning three-way handshake to confirm that it is an Enphase device.
Flashing green	After passing the three-way handshake with the IQ Gateway.
After commissioning (normal operation) *	
Rapidly flashing yellow	Starting up/Establishing communications.
Red flashes in sequences of 2	Error.
Solid yellow	Not operating because of the high temperature.
Solid blue or green	Idle. Color transitions from blue to green as the state of charge increases. You can check Enphase Cloud for charge status.
Soft pulse blue	Discharging.
Soft pulse green	Charging.
Soft pulse yellow	Sleep mode activated.
Off	Not operating.

* IQ Batteries have a one-hour orphan timer. If the IQ Gateway stops communicating with them after one hour, the IQ Batteries return to an “un-commissioned” state.

Decommissioning an IQ Battery/IQ System Controller while replacing it onsite

When replacing an IQ Battery/IQ System Controller onsite, the old IQ Battery must be retired using the Enphase Installer App.

1. Connect to the IQ Gateway using **AP mode**.
2. Go to Step 2: **Devices & Array** and select **RETIRE**, as shown in the following image. The device is removed from the Enphase Cloud and synchronized to the Enphase Installer App after IQ Gateway reports the deletion.



3. After the IQ Battery is retired, turn OFF the DC switch.
4. Add and provision the new devices as documented in [Enphase Installer App Step 4: Provisioning Devices](#).

Configuring Sunlight Backup

Follow the steps below to commission a site with the Sunlight Backup configuration.

Reference documents for Sunlight Backup

1. Read about the Sunlight Backup system and required devices on the [system configuration page](#).
2. Read [Understanding Sunlight Backup system for installers and system designers](#) to learn more about the components, essential loads, and system behavior.
3. It is recommended that the installer watch the step-by-step [video](#) on installing and commissioning the Sunlight Backup system.



4. Ensure the system installation is done according to the recommended configuration in the above installation guide.

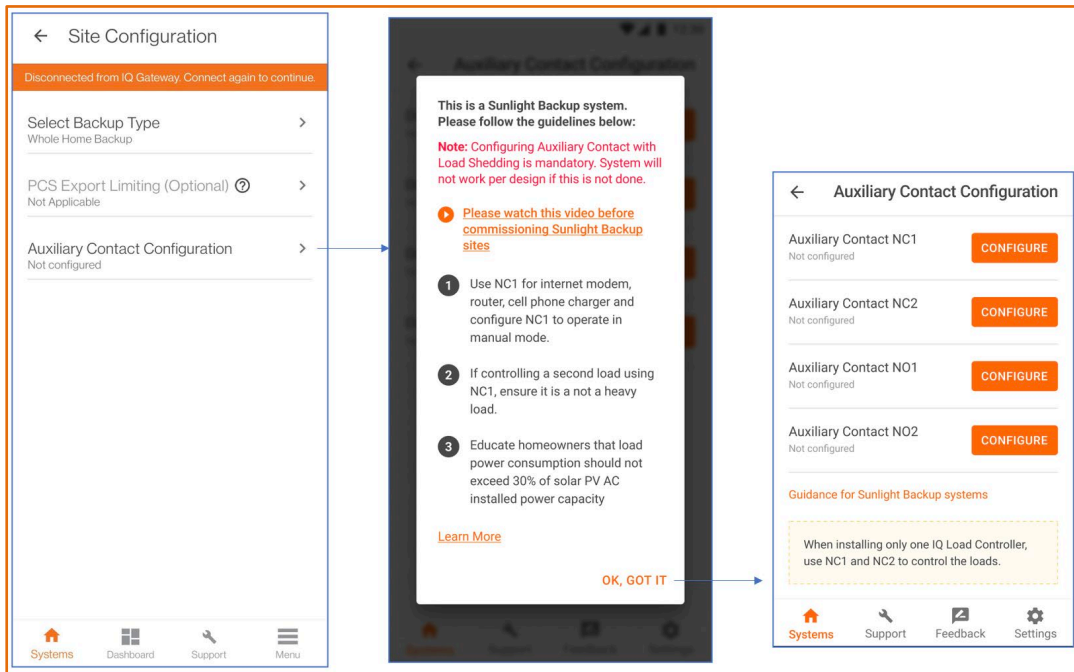
Key commissioning steps

1. Device and Array (Step 2 in the Enphase Installer App)
 - a. Follow the steps in the “Functional validation” section of [Enphase Installer App Step 5: Validation](#).
 - b. Scan IQ System Controller 2, IQ8 Series Microinverters, and IQ Load Controller.

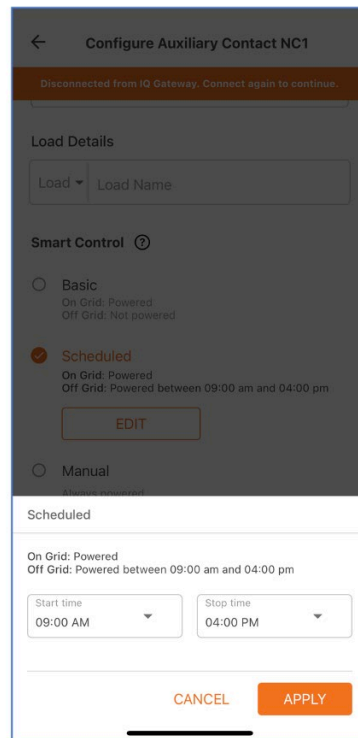
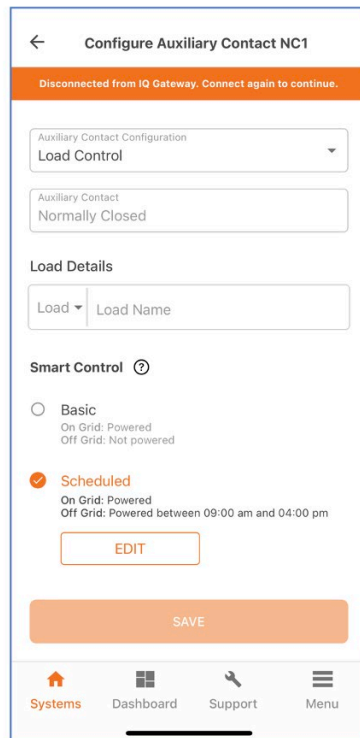


NOTE: Sunlight Backup configuration assumes the system does not have storage capability, that is, no IQ Battery available.

2. Site configuration (Step 2b in the Enphase Installer App)
 - a. When Sunlight Backup devices are added and scanned, the installers are guided to “Site configuration” (Step 2b in the Enphase Installer App). The following Sunlight Backup pop-up window, as shown in the middle, is displayed.

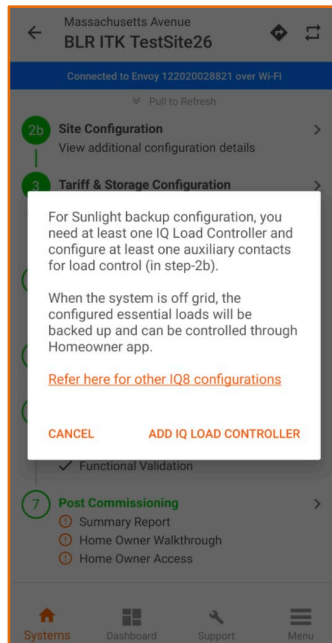


- b. Use manual mode for Auxiliary Contact NC1 and an essential light load such as the Internet router to be connected to Auxiliary Contact NC1. This configuration ensures the load connected to NC1 is powered ON as soon as power is available when off-grid. Other loads can be used in staggered mode using a scheduled configuration.



3. Provisioning

IQ Load Controller-related validation is done in provisioning, where the installer is asked to add IQ Load Controller for Sunlight Backup configuration if not added earlier.

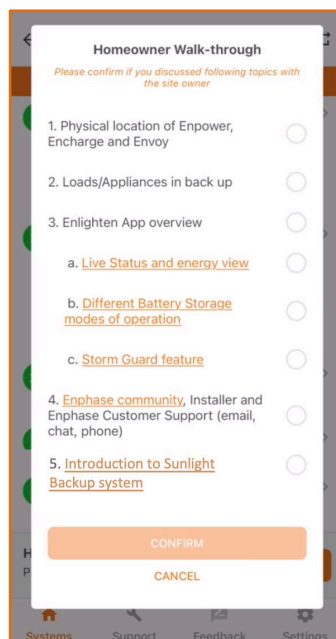


4. Functional validation

- a. Follow the steps in [Aux Contact Validation](#) for the Aux contact configured in Step 2b.
- b. Complete the functional validation after the Aux contact validation.

Post-commissioning steps

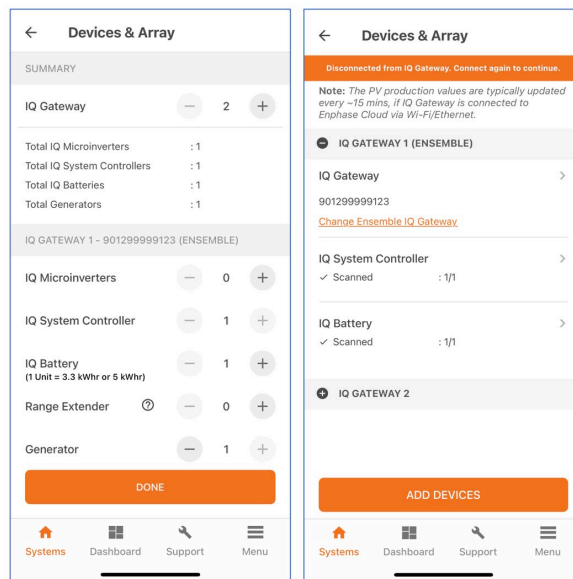
At the end of the commissioning, explain to the homeowner about the Sunlight Backup system and configure the loads as described in [Understanding Sunlight Backup system for homeowners](#).



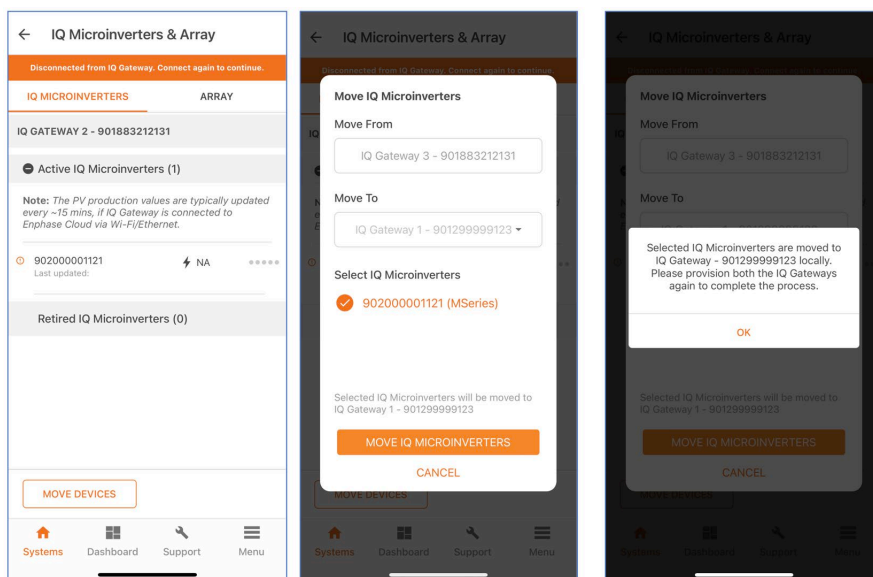
Provisioning Enphase Energy System with multiple IQ Gateways

You can add multiple IQ Gateways, but the Enphase Energy System can have only one IQ Gateway, that is, the IQ Gateway inside the microgrid on the load side of the IQ System Controller. All the Enphase Energy System devices (IQ Battery, IQ System Controller, and microinverters) must be connected to the microgrid IQ Gateway.

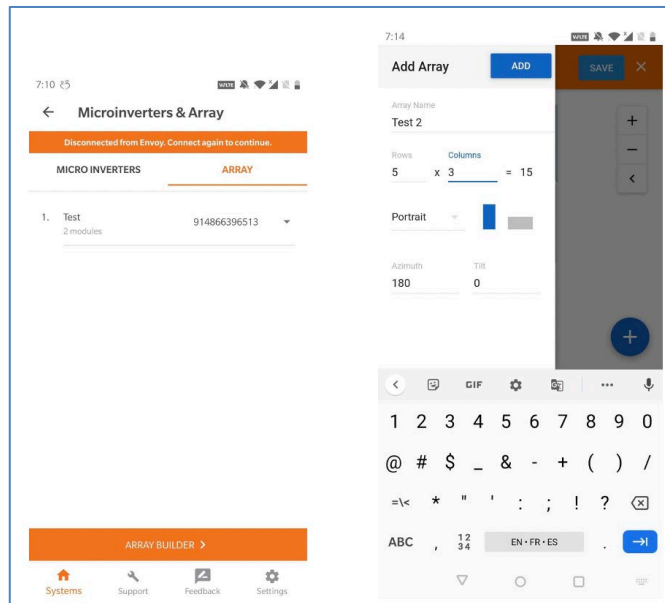
1. Ensure you have scanned all IQ Gateways' serial numbers (two or more).
2. Add storage devices such as IQ Batteries, IQ System Controllers, IQ Load Controller, generators, and range extenders in an IQ Gateway.
3. Add the non-storage devices such as IQ Microinverters, AC Batteries, and IQ Relays to the Non-Enphase Energy System IQ Gateway.



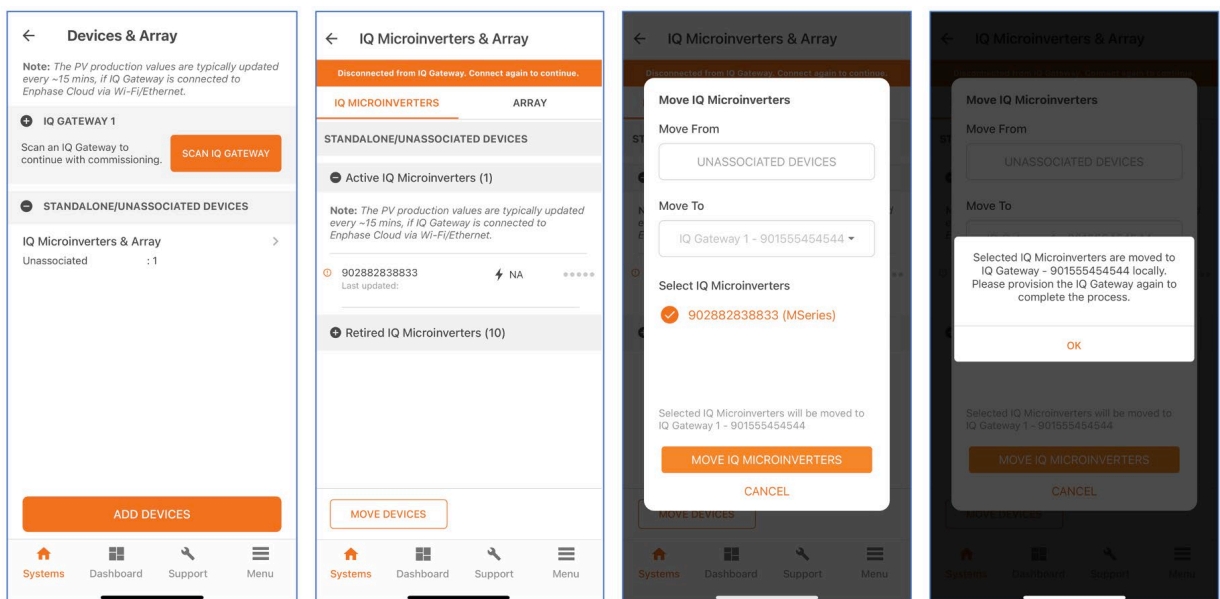
4. The installer can move non-energy devices like IQ Microinverter, AC Batteries, and IQ Relay from one IQ Gateway to another using the **MOVE DEVICES** button.



5. To assign the microinverters to the IQ Gateway, follow these steps:
 - a. It is strongly recommended to scan the PV microinverter barcodes as a power-line scan can “poach” an incorrect serial number from a nearby site.
 - b. When scanning the barcodes of the microinverters, ensure you are connected to the Internet.
 - c. Go to **Devices & Array > Microinverters & Array > ARRAY** tab.
 - i. Tap **ARRAY BUILDER**.
 - ii. Create a separate array and assign microinverters that must be included in the microgrid.
 - iii. Save and exit the array builder and assign an IQ Gateway to the array.



- iv. If a new IQ Microinverter is added to the array builder, it is saved in the **Unassociated** section and can be moved to the respective IQ Gateway using **MOVE DEVICES**.



Commissioning 3rd-generation Enphase Energy System

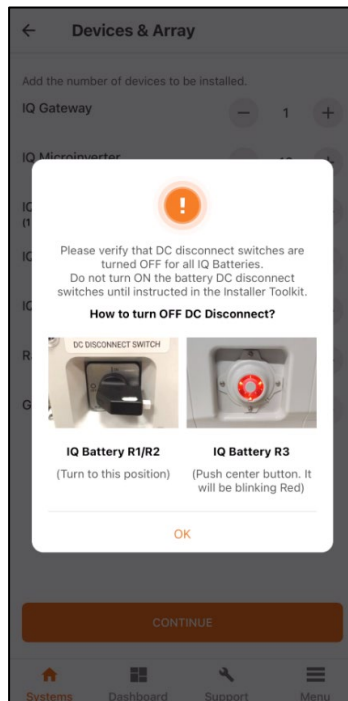
Follow these steps to commission Enphase Energy System 3.0 using the Enphase Installer App (3.XX).

Prerequisites

Ensure you have the latest version of Enphase IQ Gateway software 8.XX for commissioning grid-forming IQ8 Microinverters and Enphase Energy System.

Commissioning steps

1. Step 1—Site Details: Follow the steps in [Enphase Installer App Step 1: System Details](#).
2. Step 2—Devices & Array: Follow the steps in [Enphase Installer App Step 2: Devices & Array](#).
 - a. After the IQ Battery and IQ System Controller are added, ensure the DC disconnect switch is turned OFF.
 - b. Power ON the IQ System Controller by turning ON the utility breaker and any breakers on the line side of the IQ System Controller. Note that the DC switch ON and OFF mechanism in Enphase Energy System 3.0 is different from Enphase Energy System 1.0/2.0.



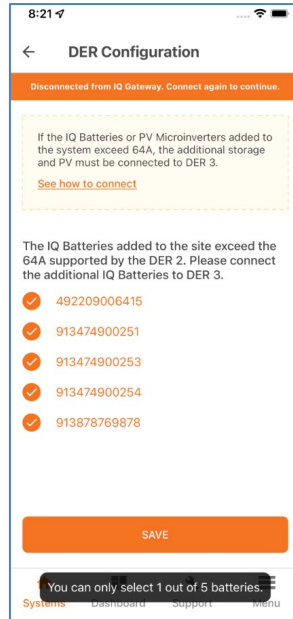
- c. Connect additional IQ Batteries to the DER 3 port.

A standard DER breaker of 80 A size can only support up to four IQ Batteries. Therefore, a user can only connect a maximum of four IQ Batteries on the DER 2 ports in the IQ System Controller. But the DER 3 port can connect additional batteries if the system has an IQ System Controller of BAT SKU type.

To ensure the IQ Batteries are connected to the appropriate DER ports, follow these recommendations:

- For systems with IQ System Controller Generator SKU
 - The maximum number of IQ Batteries allowed is four, and all IQ Batteries must be connected only to the DER 2 port of the IQ System Controller.
 - The generator must be connected to the DER 3 port.

- For systems with IQ System Controller Battery SKU
 - The maximum number of IQ Batteries supported is eight.
 - Always prioritize DER 2 ports for connecting IQ Batteries. ONLY after connecting the first four batteries to the DER 2 ports use the DER 3 ports for connecting additional IQ Batteries.
 - After the additional IQ Batteries are added to the DER 3 ports, go to the DER configuration under Step 2b (in the Enphase Installer App) to select the IQ Batteries on the DER 3 ports.



IQ System Controller type	Battery SKU		
	DER 1	DER 2	DER 3
PORT	DER 1	DER 2	DER 3
PV	YES	NO	NO
IQ Battery	NO	YES (up to 4)	YES NOTE: First 4 batteries on DER 2. Additional batteries on DER3.
Generator	NO	NO	NO

IQ System Controller type	GEN SKU		
	DER 1	DER 2	DER 3
PORT	DER 1	DER 2	DER 3
PV	YES	NO	NO
IQ Battery	NO	YES (up to 4)	NO
Generator	NO	NO	YES

3. Step 3: Gateway Connectivity

- a. Ensure you have the latest Gateway software downloaded to the phone. Check by navigating to **Menu > Settings > IQ Gateway Software**.
- b. The status should be **Up to Date**.
- c. Connect to the IQ Gateway using AP mode and configure the connectivity using the steps in [Enphase Installer App Step 3: IQ Gateway Connectivity](#).

4. Step 4: Provisioning

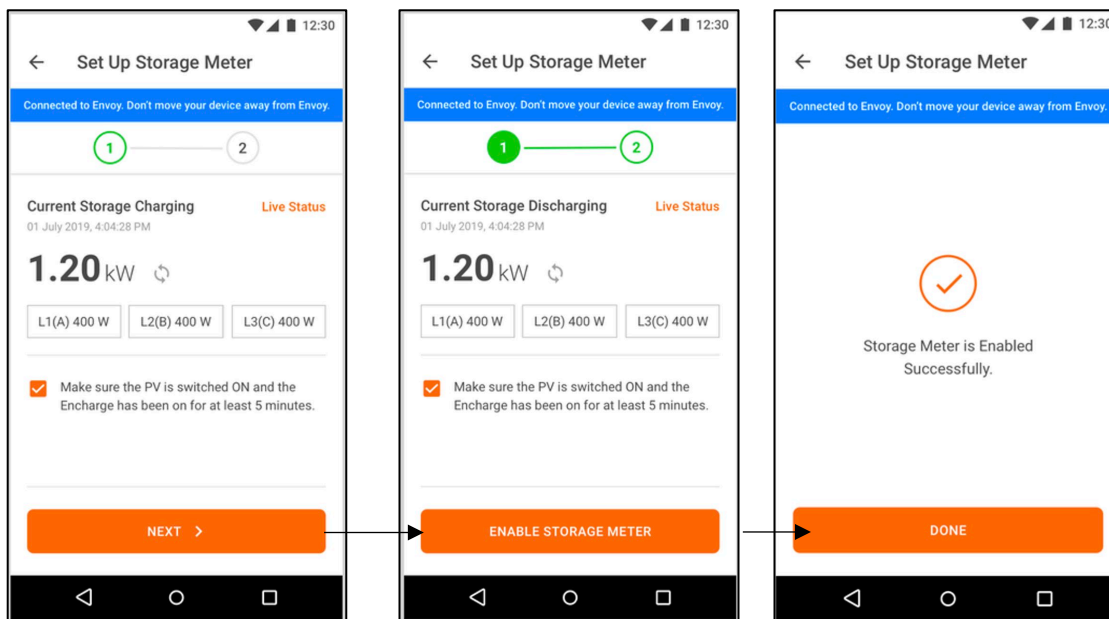
Provision the connected devices using the steps in [Enphase Installer App Step 4: Provisioning Devices](#).

Enphase Energy System 3.0 uses the fast CAN-based wired communication instead of BLE communication used in Enphase Energy System 1.0/2.0.

5. Step 5: Validation

a. Meter validation

- Production meter and Consumption meter: Follow the steps in [Enphase Installer App Step 5: Validation](#). The meters are disabled by default after installing the IQ Battery and IQ System Controller. Configure Production and Consumption CTs using the meter wizard.
- Storage meter: After provisioning, the gateway ensures the IQ System Controller and IQ Batteries have updated software and are ready for off-grid operation. This update might take up to 5-7 minutes. Wait for the update to finish before starting the storage meter.



b. Enphase Energy System software update.

After provisioning, IQ Gateway starts the Enphase Energy System software update based on the system configuration.

For information on the steps that occur after provisioning, see [Enphase Installer App Step 5: Validation](#).

c. Functional validation.

Follow the functional validation steps in [Enphase Installer App Step 5: Validation](#).



NOTE: The homeowners can use the Enphase Installer App only if the installers do functional validation.

Known issues and limitations



NOTE: These are temporary limitations. Enphase is working to fix these with software upgrades.

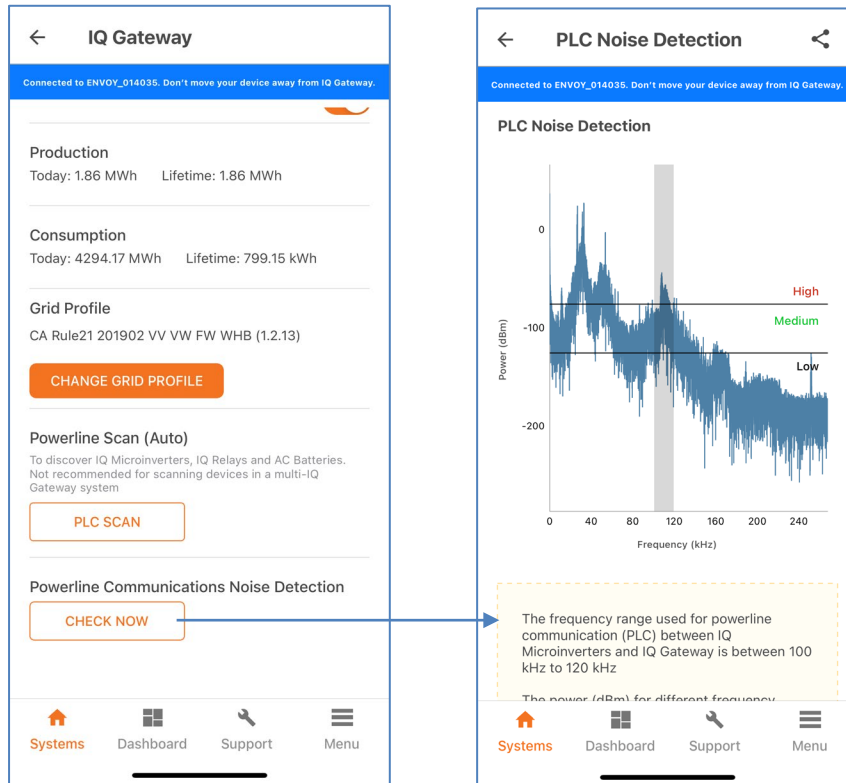
#	Issue	Workaround/fix
1	On sites with M Series Microinverters, the transition from on-grid to off-grid may take a long time. This issue is only seen when the IQ Batteries are at a very high SOC and there is very little or no load on the system.	If the system is not on the grid, ask the homeowner to turn on a few loads. The system returns to the grid after it discharges to serve loads and reduces the battery SOC.
2	M Series Microinverter firmware upgrade for cellular-only sites cannot be triggered by the installer.	Call Enphase Support to trigger the M Series Microinverter firmware upgrade for these sites.
3	M Series Microinverter firmware upgrade for multiple IQ Gateways on the same site cannot be triggered by an installer.	Call Enphase Support to trigger the M Series Microinverter firmware upgrade for these sites.



NOTE: To learn more about known field issues and Enphase-recommended solutions, refer to the [Enphase Energy Best Practices document](#).

Features for troubleshooting the system

You can now monitor the quality of power line communication between IQ Gateway and the microinverters. The PLC Noise Detection provides real-time data on the noise detected when communicating with IQ Gateway.



NOTE: To learn more about troubleshooting Enphase Energy Systems, refer to the [Enphase Energy Best Practices](#) document.

Revision history

Revision	Date	Description
TEB-00020-2.0	November 2023	Enphase Installer App 3.32.0 release updates
TEB-00020-1.0	July 2023	Initial release