

TROUBLESHOOTING

a LED overview

LED	State	Description
All	Flashing red in unison	The IQ Gateway is booting up
	Flashing green sequentially	Software upgrade in progress
	Solid green	Communicating with Enphase Installer Platform
Network communications	Flashing green	WPS connection in progress or the IQ Gateway is attempting to connect to Enphase Installer Platform
	Solid red	Local network connection only
	Off	No network connection
AP mode	Solid green	AP mode enabled: IQ Gateway Wi-Fi network available
	Off	AP mode disabled: IQ Gateway Wi-Fi network unavailable
	Solid green	All communicating microinverters are producing
Power production	Flashing green	Microinverter upgrade in progress
	Solid red	At least one microinverter is not producing
	Off	Microinverters are not producing or communicating (low-light or nighttime)
Device communications	Solid green	All devices are communicating
	Flashing green	Device scan in progress
	Solid red	At least one device is not communicating
	Off	Devices are not communicating (low-light or nighttime)

b Device detection issues

If the Device Communications LED  lights solid red, it may be a result of low-light levels. If there is not enough sunlight to power up the microinverters, they cannot communicate with the IQ Gateway.

If there is sufficient daylight for the microinverters to power up, the issue may be that the IQ Gateway is having trouble communicating over the power lines. To troubleshoot this issue:

- Check the Enphase Installer App mobile app to see which devices are not communicating.
- Check that the circuit breaker(s) for the PV array are in the "ON" position.
- Verify that the PV modules are connected to the microinverters.
- Verify that the PV module DC voltage is within the allowable range for the microinverter.
- For connection issues related to IQ Battery/IQ System Controller, ensure to perform a range test and make sure that all the devices are within the communication range.

c Power production issues

If the Power Production LED  lights solid red, check the Enphase Installer App to see which microinverters are not producing:

- If none of the microinverters is producing power, there may be a grid or wiring issue. First, verify that there is proper input voltage and frequency from the grid. Next, check the breaker and wiring, starting at the load center.
- If all the non-productive microinverters are on the same branch, check the breaker and wiring starting at the junction box for the affected branch.
- If only one or scattered microinverters are not producing power, check to see that the AC connectors are fully connected. Next, check that each module is providing the required startup voltage for the microinverter (22 V). A PV module that is failing or that is undersized may not generate enough power for AC conversion.

d Internet connection issues

If you are using Wi-Fi and the Network Communications LED  remains off:

- The WPS connection window may have timed out. Retry the connection steps.
- Ensure the broadband router is operational by checking that other devices at the site can access the network.
- Be aware that metal enclosures or obstructions impede wireless communication.
- If you cannot see your router or access point in the list on the IQ Gateway, or cannot maintain a connection, it may be necessary to add a wireless repeater to extend the network range.

If you are using Wi-Fi and the Network Communications LED lights solid red, ensure the broadband router is connected to the internet by checking that other devices at the site can access the internet.

If you are using the Enphase Mobile Connect modem and the Network Communications LED remains off or lights solid red, see the "Troubleshooting" section in the [Enphase Mobile Connect Installation Guide](#).

If you replace the broadband router, configure the IQ Gateway Wi-Fi settings for the new Wireless Network Name (SSID) and password. Or use the WPS function described in step 6.

SAFETY

Safety and advisory symbols

	DANGER: This indicates a hazardous situation, which if not avoided, will result in death or serious injury.
	WARNING: This indicates a situation where failure to follow instructions may be a safety hazard or cause equipment malfunction. Use extreme caution and follow instructions carefully.
	NOTE: This indicates information particularly important for optimal system operation. Follow instructions carefully.

Safety instructions

	DANGER: Risk of electric shock. Risk of fire. Do not attempt to repair the IQ Gateway; it contains no user-serviceable parts. Tampering with or opening the IQ Gateway will void the warranty. Warranty void if cover removed. If the IQ Gateway fails, contact Enphase customer support for assistance (https://enphase.com/contact/support).
	DANGER: Risk of electric shock. Always open or disconnect circuit from power-distribution system (or service) of building before installing or servicing current transformers (CTs).
	DANGER: Risk of electrocution! Do not install CTs when current flowing in the sensed circuit. Always install CT wires in the terminal blocks before energizing the sensed circuit.
	DANGER: Risk of electric shock. Do not use Enphase equipment in a manner not specified by the manufacturer. Doing so may cause death or injury to persons, or damage to equipment.
	DANGER: Risk of electric shock. Be aware that installation of this equipment includes risk of electric shock. Always de-energize the load center before beginning wiring.
	DANGER: Risk of electric shock. Risk of fire. Only qualified personnel should troubleshoot, install, or replace the IQ Gateway.
	DANGER: Risk of electric shock. Risk of fire. Do not wire unused terminals or terminal blocks on the IQ Gateway.
	WARNING: Before installing or using the IQ Gateway, read all instructions and cautionary markings in the technical description and on the IQ Gateway.
	WARNING: Risk of equipment damage. If installing the IQ Gateway in an enclosure, choose area for installation where ambient temperature does not exceed 46°C (115°F).

Revision history

REVISION	DATE	DESCRIPTION
140-00210-03	September 2023	Updated the Enphase Installer App workflow and added instructions for battery metering
Previous releases		

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Enphase Support: <https://enphase.com/contact/support>

	NOTE: Do not install the CTs in a panel where they exceed 75% of the wiring space of any cross-sectional area within the panel, or refer to local standards for guidance.
	NOTE: Do not install CTs in an area where they will block ventilation openings, or in area of breaker arc venting.
	NOTE: The CTs are not suitable for Class 2 wiring methods and not intended for connection to Class 2 equipment.
	NOTE: Secure CT and route conductors so that they do not directly contact live terminals or bus.
	NOTE: Perform all electrical installations in accordance with all national and local electrical codes.
	NOTE: To ensure optimal reliability and to meet warranty requirements, the IQ Gateway must be installed according to the instructions in this guide.

FCC statement: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications not expressly approved by the party responsible for compliance may void the user's authority to operate the equipment.

This Class B digital apparatus complies with Industry Canada ICES-003.

QUICK INSTALL GUIDE (Model: ENV2-IQ-AM1-240, ENV-IQ-AM1-240)



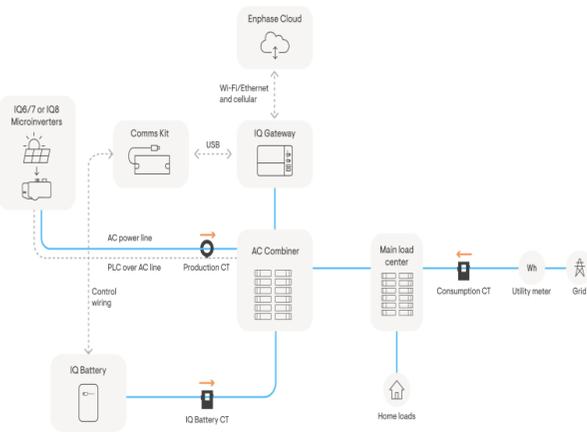
Installing the Enphase IQ Gateway

To install the Enphase IQ Gateway, read and follow all warnings and instructions in this guide. The safety warnings are listed at the end of this guide.

IMPORTANT: Enphase IQ Gateway does not communicate with, and should not be used with, previous generation Enphase M Series and S Series Microinverters. Always use IQ Series Microinverters with an IQ Gateway.

NOTE: ENV2-IQ-AM1-240 is IEEE1547:2018 compliant, while ENV-IQ-AM1-240 is not. ENV2-IQ-AM1-240 is mandatorily required to be installed in locations that have adopted the IEEE1547:2018 standard.

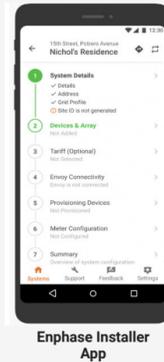
How it works



IQ Gateway display and controls

Track system installation progress with the **Enphase Installer App**. The LEDs on the IQ Gateway are solid green when a function is enabled or performing as expected, flashing when an operation is in progress, or solid red when troubleshooting with Enphase Installer App is required. For a legend of all LED states, see Troubleshooting **a**.

-  **Network communications LED**
Green when IQ Gateway is connected to Enphase Installer Platform.
-  **AP mode LED**
Green when IQ Gateway's AP Wi-Fi network is available.
-  **AP mode button**
Press to enable IQ Gateway's AP Mode for connecting with a mobile device. Hold for five seconds to start WPS connection to a router.
-  **Power production LED**
Green when microinverters are producing power.
-  **Device communications LED**
Green when devices are communicating with IQ Gateway.
-  **Device scan button**
Press to start/stop 15 minute scan for devices over the power line.



PREPARATION

- Download the Enphase Installer App version 3.X and open it to log on to your Enphase Installer Platform account. This mobile app, lets you connect to the IQ Gateway to track system installation progress. To download, go to enphase.com/installerapp.
- Download the latest version of the software to your mobile device from the "IQ Gateway Resources" screen of the Enphase Installer App "Settings" tab.
- Check the box for the following items:
 - IQ Gateway (look for the orange IQ logo)
 - Solid-core production metering Current Transformer (CT)
 - DIN rail for mounting the IQ Gateway
 - IQ Gateway Quick Install Guide (this document)
- If you plan to do consumption metering, ensure you have two split-core consumption metering CTs (order CT-200-SPLIT or CT-200-CLAMP).
- Check that there is enough space in the load center to install CTs. Do not install CTs where they exceed 75% of the wiring space of any cross-sectional area within the load center.
- Install the IQ Gateway in an NRTL-certified, NEMA-type 3R (or better) enclosure with conduit attachment when installing outdoors. Do not drill holes on the top of the enclosure or anywhere that allows moisture ingress. Metallic enclosures may impair Wi-Fi signal strength. Use an appropriately rated enclosure if installing indoors.

 **NOTE:** If using the COMMS-KIT-02, a NEMA 3R enclosure is supplied with the COMMS-KIT-02 and can be used for installing the IQ Gateway.

- Decide how to connect the IQ Gateway to the internet: Use Wi-Fi, an Enphase Mobile Connect modem, or Ethernet. Ensure to have the following optional items if needed:
 - Enphase Mobile Connect
 - Ethernet over power line communication (PLC) bridge with Ethernet cables (order EPLC-01).
 - Ethernet cable [802.3, Cat5E or Cat6, unshielded twisted pair (UTP)]. Do not use shielded twisted pair (STP) cable.
- If you are installing the IQ System Controller and/or IQ Battery storage system, you must order a Communications Kit. For sites with IQ System Controller 3/3G and/or IQ Battery 5P, you must order a COMMS-KIT-02. For previous generations of the IQ System Controller 2 and IQ Battery, COMMS-KIT-01 is required.
- Create a paper installation map to record device serial numbers and positions in the array. You will scan this map later using Enphase Installer App and your mobile device.
 - As you do with the microinverters, peel the removable label from the bottom of the IQ Gateway and affix it to the paper installation map.
 - Always keep a copy of the installation map for your records.
- The installation of the IQ Gateway has two parts. To ensure successful device detection, complete Part 2 after installing any IQ Microinverters, IQ Battery, and IQ System Controller.

 **NOTE:** If needed, you can find an installation map at the end of the IQ Microinverter Quick Install Guide.



140-00210-03

INSTALLATION – Part 1

It is a best practice to complete Installation Part 1 before installing **Enphase microinverters, IQ Battery, and/or IQ System Controller**.

For steps 2 and 3, refer to the wiring diagram on the next page.

1 Choose a location for the IQ Gateway

WARNING: Risk of equipment damage. When installing the IQ Gateway in an enclosure, choose area for installation where ambient temperature does not exceed 46°C (115°F).

A) Install the IQ Gateway near the main load center or point of common coupling (PCC) and consider the length of the Production CT leads (5 feet) when choosing the location. Do not extend the leads of the Production CT.

B) Install the IQ Gateway in a protected dry space in an NRTL-certified, NEMA-type 3R (or better) enclosure with conduit attachment. Use an appropriately rated enclosure if hard-wiring the IQ Gateway indoors.

NOTE: Metallic enclosures may impair Wi-Fi signal strength.

2 Wire the IQ Gateway for power and metering

The IQ Gateway uses terminal blocks for power and metering connections. You must install one solid-core Current Transformer (CT) for production metering. For solar-only sites, consumption monitoring is optional and requires that you order and install two additional split-core CTs. For grid-forming Enphase Energy System sites, consumption meters are mandatory. Additionally, IQ Battery metering is supported on sites with an IQ Battery 5P. Use a protected route in conduit for the CT wires from the main load center to the IQ Gateway. The Consumption CT leads are 13 feet long. Do not extend the leads of the Production CT.

DANGER! Risk of electric shock. Always de-energize circuits before wiring for power and CTs.
DANGER! Risk of electrocution! Do not install CTs when current is flowing in the sensed circuit. Always install CT wires in the terminal blocks before energizing the sensed circuit.

NOTE: When installing CTs, it is important to match CT and sense voltage phases. Be sure to consistently identify the two AC lines at three points: the main load center feed, the IQ Gateway, and the solar production circuit breaker. Wire colors (typically black and red) may not always consistently identify L1 and L2. If in doubt, use a multimeter to check.

NOTE: Because of variance in load center design and main power feed, there may not always be enough space to install consumption metering CTs. See our technical brief, Assessing a Site for Installing Consumption CTs, at <https://enphase.com/contact/support>.

A) Wire the IQ Gateway for **power**

- Use a two-pole circuit breaker of up to 20 A (maximum) for the supply wiring.
- Make sure supply wiring is 12-14 AWG copper rated at 75°C or better.
- Use a screwdriver to loosen the screw on the terminal block door and open the door.
- Flip open the terminal block door and wire the line and neutral conductors as shown: Connect Line 1 to L1, Line 2 to L2, and Neutral to N. Tighten to 10.5 in-lbs.

B) Install the CT for **production** metering

- Place the CT near L1 of the solar production circuit and make sure the circuit is not energized (breaker OFF).
- Locate the arrow on the CT label.
- Connect the white wire to the left P1 terminal.
- Connect the blue wire to the right P1 terminal.
- Tighten all connections to 5 in-lbs.

Pass the L1 wire through the CT in the same direction as the arrow on the side of the CT on Line 1 (matching IQ Gateway's "L1" voltage terminal) of the solar production circuit with the arrow pointing toward the load (away from the solar array).

NOTE: Do not pass conductors from AC Battery branch circuits through the Production CT. This will distort production readings. The IQ Battery battery circuits must terminate on the load side of the Consumption CTs.

NOTE: Enphase recommends that the Production CT be installed. It is required for accurate production metering and for exporting limiting along with the Consumption CTs. If these features are not required, the Production CT does not need to be installed.

C) Install CTs for **consumption** metering

- Make sure that the main load center wires are de-energized until you have secured the CT wires in the terminal blocks.
- Before running the CT wires through the conduit, use colored tape to mark one of the CTs and the free end of its wires.
- For the marked CT, connect the white wire to the upper "C1" terminal and the blue wire to the lower "C1" terminal.
- For the unmarked CT, connect the white wire to the upper "C2" terminal and the blue wire to the lower "C2" terminal.
- Tighten all connections to 5 in-lbs.
- Clamp the marked CT on the load center feed wire Line 1 (matching the IQ Gateway's "L1" voltage terminal) with the CT arrow pointing toward the load (away from the grid).
- Clamp the unmarked CT on the load center feed wire Line 2 (matching the IQ Gateway's "L2" voltage terminal) with the CT arrow pointing toward the load (away from the grid).

D) **Install CT for IQ Battery metering**

NOTE: This is applicable only for sites with IQ Battery 5P.

- Short the L2 and L3 power terminals of the IQ Gateway using a shorting jumper provided with the COMMS-KIT-02.
- Clamp the IQ Battery CT on the line 2 power wire for all branches of IQ Battery 5P (matching the IQ Gateway's "L2" voltage terminal) with the CT arrow pointing toward the load (away from the battery).
- Connect the CT lead wires to the C3 port on the consumption meters on the IQ Gateway, as shown in the image in this QIG.

3 Energize and update the IQ Gateway

A) Close the terminal block door, and secure it with the screw.

B) Turn on the circuit feeding the IQ Gateway.

C) On the IQ Gateway, if the AP mode LED is not lit, press the AP mode button.

D) On your mobile device, go to "Settings" and join the Wi-Fi network "Envoy_nnnnnn" (where "nnnnnn" represents the final six digits of the IQ Gateway serial number).

E) Log into the Enphase Installer App on your mobile device and download the latest version of IQ Gateway software. To do so, go to the "Settings" tab in the Enphase Installer App and select "Update Now" under "IQ Gateway Software".

WARNING: Do not remove power from the IQ Gateway during the update.

F) For a short period (5-10 minutes), you must keep your mobile device near the IQ Gateway. Follow the on-screen instructions while the update takes place.

The IQ Gateway software update process may take up to 25 minutes. During the software update, the LEDs on the IQ Gateway flash green one at a time from right to left. During this time, the IQ Gateway will reboot multiple times. All four LEDs flash red when the IQ Gateway reboots.

Once the update is finished and the PV system is installed, the IQ Gateway is ready for Installation Part 2.

All four LEDs flash red during boot-up (approximately three minutes). When boot-up is complete, the Device communications LED  lights solid red, indicating that devices are not yet detected.

NOTE: On power-up, LEDs can take up to 30 seconds to glow. While restarting, wait for two minutes after powering off the IQ Gateway, before powering it back on.

4 Installing accessories with the IQ Gateway

The IQ Gateway has 2 USB ports that can be used for installing the below compatible accessories.

- Mobile Connect:** Delivers an easy and reliable cellular network for communication between the IQ Gateway and the Enphase Cloud.
- Communications Kit:** For wireless communication between the IQ Gateway and IQ Battery 3T/10T and/or the IQ System Controller 2.
- Communications Kit 2:** For wired control communication between the IQ Gateway and IQ Battery 5P and/or the IQ System Controller 3/3G.

A) Installing the **Mobile Connect**

Purchase the Mobile Connect separately for a reliable cellular network for communication between the IQ Gateway and the Enphase Cloud. The mobile should be installed in the same NEMA 3R (or better rated) enclosure used for installing the IQ Gateway. To install the Mobile Connect, plug in the USB cable provided with the Mobile Connect in one of the 2 USB ports available on the IQ Gateway. The Mobile Connect is powered by the IQ Gateway and does not need an external power source.

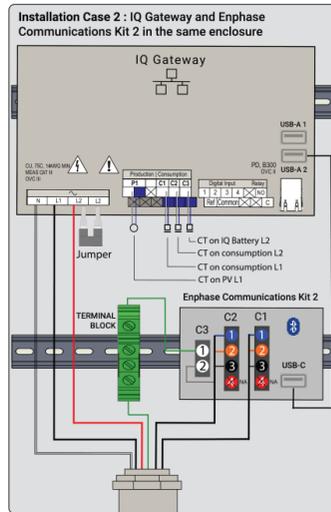
B) Installing the **Communications Kit 1**

Purchase the Communications Kit 1 separately for wireless communication between the IQ Gateway and IQ Battery 3T/10T and/or the IQ System Controller 2. This device should be installed in the same NEMA 3R (or better rated) enclosure used for installing the IQ Gateway. To install the COMMS-KIT-01, plug in the USB cable of the COMMS-KIT-01 in one of the 2 USB ports available on the IQ Gateway.

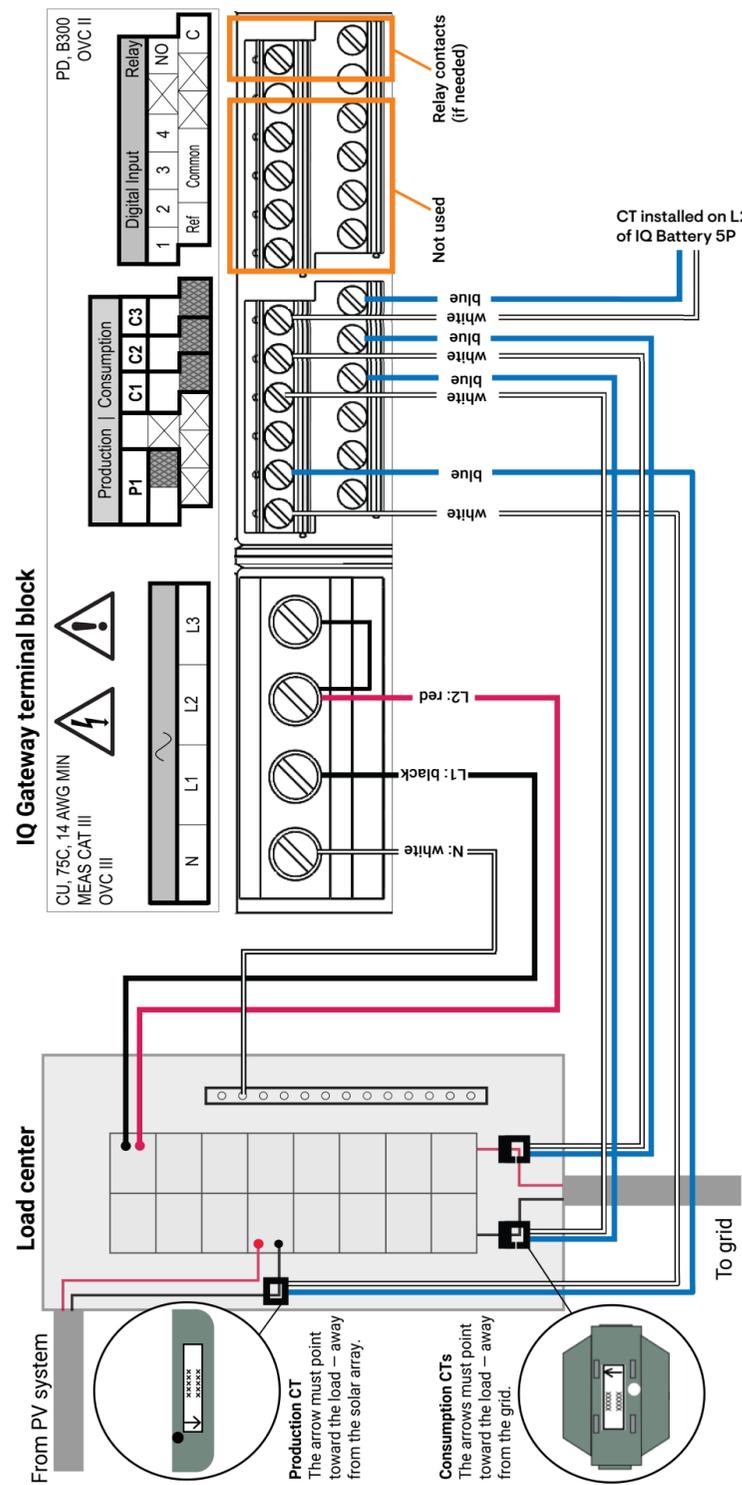
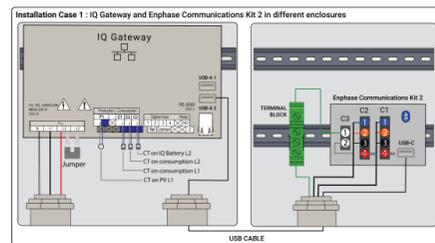
C) Installing the **Communications Kit 2**

Purchase the Communications Kit 1 separately for wired control communication between the IQ Gateway and IQ Battery 5P and/or the IQ System Controller 3/3G. The product ships with a NEMA 3R enclosure that can be used for installing the IQ Gateway.

If the IQ Gateway is installed inside the Communications Kit 2 enclosure, then connect the USB cable directly to the USB slot on the IQ Gateway.



If the IQ Gateway is not installed inside the Communications Kit 2 enclosure, then draw the USB cable outside the Communications Kit 2 enclosure and into the enclosure housing the IQ Gateway.



INSTALLATION – Part 2

You must complete **Installation Part 2 AFTER** installing **Enphase microinverters, IQ Battery and/or IQ System Controller**.

5 Launch Enphase Installer App and start system activation

- Launch Enphase Installer App. To create an activation for a new system, tap the Plus button on the bottom right corner of the screen.
- Tap "System Details" to enter the required information.
- Complete the system activation in Enphase Installer App by filling in the details.

The "System created successfully" message will display at the bottom of your screen and system details will appear now as complete.

6 Adding devices and array to the system

This step is used to enter unique serial numbers of all devices present on-site. It is recommended that you enter the serial number by scanning the barcode/QR code.

- Tap "Devices and Array" on the home page.
- Add the total number of devices to be installed in your system.
- Scan device serial numbers through bar code or QR code in respective device sections.

In addition to using your device's camera to scan serial numbers, you can enter the serial numbers manually. Manual entry should be used only when you are not able to scan the bar code or QR code of any device.

D) After scanning microinverters, you can use Array Builder to assign your scanned microinverters to an array or build an array manually.

This step can be completed post commissioning as well.

7 Setting the tariff details (optional)

This step is used to enter the electricity rate structure of the utility.

- "Tap Tariff & Storage Configuration" on the home page.
- Subsequently, tap on the "Tariff Editor" to enter the electricity import or export rate. Ensure that the device is connected to the internet to complete this step.

8 IQ Gateway connectivity

This step is used to establish/monitor IQ Gateway connectivity to Enphase Cloud and Enphase Installer App. You can also update IQ Gateway in this step if it is needed for successful commissioning.

A) Tap on the "IQ Gateway Connectivity" on the Enphase Installer App home page.

B) If the "IQ Gateway" and the "Enphase Installer App" (or the phone icon) are not connected, follow these steps:

- On the IQ Gateway, press the AP mode button (first button from the top) for about one second. The LED will light solid green.
- Go to your phone's settings and connect to IQ Gateway's Wi-Fi network.
- Return to the Enphase Installer App IQ Gateway Connectivity page and connect.

C) If the "IQ Gateway" and "Enphase Cloud" (or the cloud icon) are not connected, follow these steps:

- The IQ Gateway can connect to Enphase Cloud through either Wi-Fi, Ethernet, or cellular.
- If Wi-Fi is selected, input the username and password for the home/office Wi-Fi.
- If connecting using Ethernet, simply plug the cable into the IQ Gateway.

9 Provisioning the devices

To provision your devices, the Enphase Installer App should be connected to IQ Gateway via AP mode as described in the "IQ Gateway Connectivity" section.

- If a green checkmark displays between the IQ Gateway and Enphase Installer App, tap "START PROVISIONING DEVICES". The "Provisioning Devices" screen displays the steps executed by Enphase Installer App. The Enphase Installer App verifies and updates the grid profile in IQ Gateway and provisions all the connected devices.
- When provisioning is complete, tap "DONE".

10 Verify meter configuration

The production meter can be configured as per the following steps:

- Tap on the "Meter Configuration" to start configuring consumption and production meter.
- Subsequently, tap on the "Production Meter" to start configuring production meters. A pop-up message appears asking you to follow the meter wizard to verify your CT configuration. Select "Yes" to proceed.
- Tap "Enable production meter" to finish the configuration of the production meter.

The consumption meter can be configured as per the following steps:

- Tap on the "Meter Configuration" to start configuring consumption and production meter.
- Subsequently, tap on the "Consumption Meter" to start configuring production meters. A pop-up message appears asking to follow the meter wizard to verify your CT configuration. Select "Yes" to proceed.
- Tap "Enable consumption meter" to finish configuration of consumption meter.

11 Send summary report and complete homeowner walkthrough

This step is used to download the summary report of all the devices installed and reporting to IQ Gateway. You can share this report using email, text, or airdrop. It contains details of each provisioned device and the commissioned status of the system.

- Tap "Summary" in the Enphase Installer App Home Page. The system report is displayed on the screen, which consists of a list of devices, their serial numbers, their last reports, and information about the grid profile applied to the devices.
- When provisioning is complete, tap "DONE".
- Tap "SHARE" on the right top corner to share the report as needed.
- Open Homeowner Walkthrough and discuss all listed points with the homeowner. You can also show the videos embedded in the links to the homeowner for a better experience.