ENPHASE.

IQ Gateway Metered

141-00035 Rev 01

Corporate Headquarters Contact Information

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enphase.com
enphase.com/global/support-request

Environmental Protection

Waste electrical products should not be disposed of with household waste. Please recycle where facilities exist. Check your Local Authority or retailer for recycling advice.

Other Information

For third-party license information, refer to enphase.com/licenses.

For Enphase patent information, refer to enphase.com/company/patents/.

Product information is subject to change without notice. All trademarks are recognised as the property oftheir respective owners.

For warranty text, refer to enphase.com/warranty.

User documentation is updated frequently; Check the Enphase website (enphase.com/support) for the latest information.

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Audience

This manual is intended for use by professional installation and maintenance personnel.

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 15 Nov, 2022

SAFETY

Read this First

Follow the instructions in this manual. These instructions are key to the installation and maintenance of theIQ Gateway Metered™.

To ensure the safe installation and operation of the IQ Gateway, note the following safety symbols that appear throughout this document to indicate dangerous conditions and important safety instructions.

⚠	**DANGER**:	This indicates a hazardous situation, which if not avoided, will result in death orserious 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 that is very important for optimal system operation. Follow instructions closely.

Safety Instructions

⚠	**DANGER**: Risk of electrocution!	Do not install current transformers (CTs) when current is flowing in the sensedcircuit. Always install CT wires in the terminal blocks before energising the sensed circuit.
⚠	**DANGER**: Risk of electric shock. Risk offire.	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. If the IQ Gateway fails, contact Enphase for assistance (enphase.com/global/support-request).Refer servicing to qualified personnel.
		Only qualified personnel should troubleshoot, install, or replace the IQ Gateway.
		Do not wire unused terminals or terminal blocks on the IQ Gateway.
⚠	**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.
		If you wire the IQ Gateway at the sub-board, always de-energise the sub-boardbefore beginning wiring.
⚠	**WARNINGS:**	Before installing or using the IQ Gateway, read all instructions and cautionarymarkings in the technical description and on the IQ Gateway.
		Risk of equipment damage. When installing the IQ Gateway in an enclosure, choosearea for installation where ambient temperature does not exceed 46º C.
☑	**NOTES:**	Perform all wiring in accordance with all applicable local electrical codes.
		To ensure optimal reliability and to meet warranty requirements, the IQ Gateway must be installed according to the instructions in this manual.

The IQ Gateway

The IQ Gateway is an integral component of the Enphase Home Energy Solution. It operates between Enphase Microinverters, or other PV system, and the Enphase Installer App™ web-based monitoring and analysis software. When used with Enphase devices, the IQ Gateway can control grid management functions and monitor PV production and site consumption. When used with non-Enphase PV systems, it can collect production and consumption data, but it does not control grid management functions.

The **IQ Gateway Metered** uses precision Current Transformers (CTs) to measure PV production from the solar main supply switch and home energy consumption from the AC mains.

How the Enphase Home Energy System Works

This integrated system maximises energy harvest, increases system reliability, and simplifies design, installation, and management.

The Enphase Microinverter converts the DC output of the PV module into grid-compliant AC power. In addition to performing the DC to AC conversion, it maximises energy production by using a sophisticatedMaximum Power Point Tracking (MPPT) algorithm.

The IQ Gateway operates as a gateway between the Enphase Microinverters and Enphase Installer App. It collects energy and performance data from the PV system over on-site AC power lines, and it forwards that data to Enphase Installer App, via the Internet, for statistical reporting. Enphase Installer App analyzes the data collected by each communicating device. Enphase Installer App automatically detects any shortfall in energy production, identifies possible causes, and suggests solutions. Enphase Installer App constantly monitors every Enphase device connected to the IQ Gateway and is essential for system monitoring and troubleshooting.

Enphase Installer App provides a wide range of information on system performance. You can access Enphase Installer App onyour computer or mobile device and view current performance information at any time.

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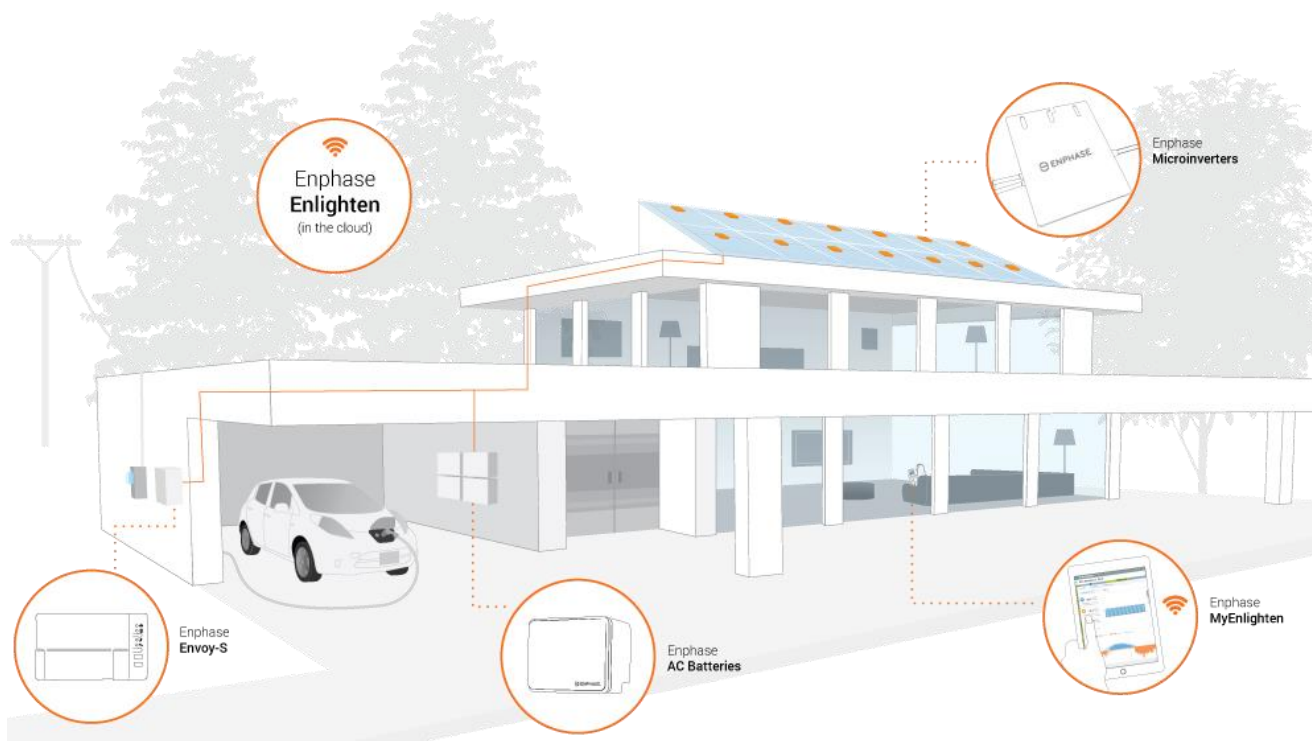
Installation Planning and Preparation

To the Local Area Network (LAN), the IQ Gateway is just another host on the network, much like a personal computer. The IQ Gateway simply connects to the on-site router or Enphase Mobile Connect™ (cellular modem) for communications with the Enphase Installer App monitoring and analysis website. The IQ Gateway communicates with the Enphase Microinverters and AC Batteries using the site's power lines.

After the IQ Gateway is installed and all devices (microinverters and/or batteries) are scanned or provisioned, the IQ Gateway maintains an internal database of all known Enphase devices at the site it manages. At regular intervals, the IQ Gateway polls each Enphase device for its energy data. Using its Internet connection, the IQ Gateway then forwards that information to Enphase Installer App. The IQ Gateway also reports any error conditions affecting itself or other Enphase devices. You can view both energy data and errorconditions in Enphase Installer App.

The IQ Gateway incorporates power line and Internet communications functions. One "side" of the IQ Gateway communicates with the Enphase devices through power lines at the site. The other "side" of the IQ Gatewaycommunicates with Enphase Installer App over the Internet.
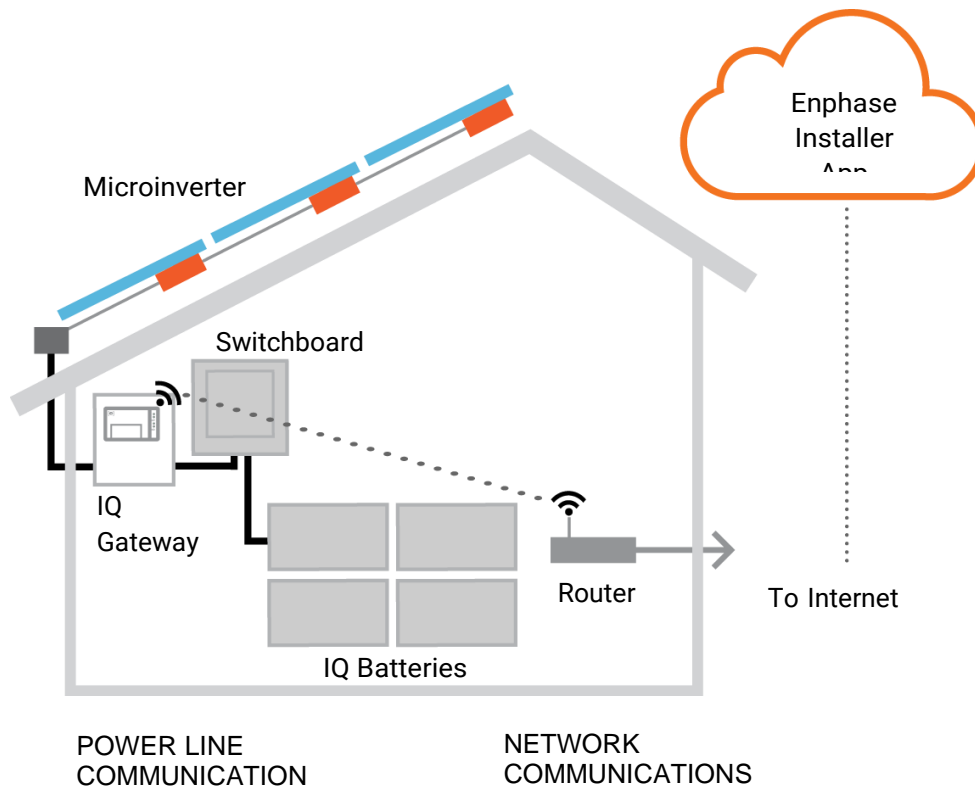
Pre-installation Checks

Review the following pre-installation checks before you install the IQ Gateway:

Download the Installer App

The Enphase Installer App is a mobile app for iOS and Android devices (smart phone or tablet) that allows installers to configure the system while onsite, eliminatingthe need for a laptop and improving installation efficiency.

- Download the latest version of **the Enphase Installer App** mobile app, and open it to log in to your **Enphase Installer App account**. With this app, you can connect to the IQ Gateway to track system installation progress. To download, go to enphase.com/installer-App or scan the QR code:
- If you already have the Installer App on your phone, ensure you have updated it to the latest version (3.x).
- To run the Installer App, you need either of the following mobile devices:
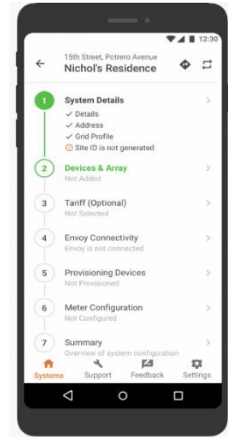 - An Android mobile device running Android version 5 (Lollipop) or later, or
  - An iOS device running iOS 8 or later.

Enphase Installer App

Box Contents

Check the shipping box for the following items:

- IQ Gateway Metered
- Current transformers (CTs): Two split core CTs, one for production and one for consumption metering. You must order additional CTs (CT-100-SPLIT-ROW-ROW) to separately monitor multiple phases.
- Length of DIN rail for mounting
- Ferrite bead to attach to your Ethernet Cable, if used
- IQ *Gateway Quick Install Guide*

Plan the Enclosure Type

Install the IQ Gateway in an IP54-rated, or better enclosure. Use an appropriately rated enclosure if hard-wiring indoors.

Use a Phase Coupler for a Multiphase Site

If you are installing in a multiphase application, the power line communication signal must be "coupled" between the phases to allow the IQ Gateway to communicate with all the Enphase devices in the system. Install a phase coupler on the load side of the over-current protection device. See the Enphase TechnicalBrief on Phase Coupling for your region at enphase.com/support or consult Enphase support for compatible devices.

Plan the Internet Connection

To use the **Enphase Installer App** web-based monitoring and analysis software, additional requirements are:

- Internet connection for the IQ Gateway through a traditional router or modem or Enphase MobileConnect (Enphase model CELLMODEM-02). Decide whether to connect the IQ Gateway to the Internet using integrated Wi-Fi, an Enphase Mobile Connect modem, or using a PLC bridge withEthernet cables.
- One of the following Web browsers with cookies enabled: Chrome 44 or higher, Firefox 41 or higher, Internet Explorer 11, Microsoft Edge for Windows, Safari 8 or higher.

Metering CT Considerations

The IQ Gateway uses readings from CTs to report measurement data for PV energy production and energy consumed by the home or business. When current transformers (CTs) are wrapped around a live wire, the current going through the wire induces a current on the CTs primary internal winding, which in turn induces a current on the CTs secondary internal winding. The current on the secondary winding is proportional to the current on the original circuit and this is used for making measurements. Install the CTs as shown in the wiring instruction for your region.

- Production CTs measure power production through a connection to the solar supply mainswitch.
- Consumption **CTs** measure energy consumption through a connection to the AC mains.

To install the CTs, use a protected route in conduit for the CT wires to the IQ Gateway. Install one split-coreCT per monitored phase for production metering and one split-core CT per monitored phase for consumption metering. If you need to extend the CT leads (up to 148 meters), see "Extend CT Leads, If Needed" on page 16.

Required Items

If you hard-wire the IQ Gateway outdoors, you must install it in **NRTL certified NEMA type 3R (or better) enclosure.** Note that Metallic enclosures may impair Wi-Fi signal strength. Use an appropriately rated enclosure if hard-wiring indoors. Do not drill holes for conduit at the top of the enclosure or anywhere that allows moisture ingress.

The IQ Gateway Metered includes a production CT and a consumption CT. You must order additional CTs (CT-100-SPLIT-ROW-ROW) for multiphase installations. Make sure you have one CT for each phasemonitored, for both production and consumption.

Optional Items

Make sure you have the following optional items, if needed:

- Enphase Mobile Connect modem (order Enphase CELLMODEM-02)
- Ethernet over power line communication (PLC) bridge with Ethernet cables [order EPLC-02 (EU), EPLC-03 (UK) or EPLC-04 (AU/NZ) separately]
- Ethernet cable (use 802.3, unshielded Cat5E or Cat6). Do not use shielded twisted pair (STP)cable.

System Metering

The IQ Gateway monitors up to 600 Enphase Microinverters and up to 39 Enphase AC Batteries.

IQ Gateway name and modelnumbers (SKU)	Case colour	Metering / reporting	Includes AC powercord or CTs	DRM ready
IQ Gateway Metered, multiphase (ENV-S-EM-230)	Black	Integrated PV production and home consumption metering (accuracy +/- 1%)	Two split-core CTs (CT-100-SPLIT-ROW-ROW). Order additional CTsto monitor multiple phases.	Yes

NOTE: To install **multiple** IQ Gateways at a single site, see our technical brief on commercialdesign at enphase.com/support.

Create the Map and Install the PV Modules and Enphase Microinverters

If you installed an Enphase PV system at this site, create the Enphase installation map and install the PV modules and Enphase Microinverters. You will scan this map later using Installer App and your mobiledevice. (See "Method A: Provision Devices with Installer App" on page 18.)

NOTE: You can find an Enphase installation map at the back of any Enphase Microinvertermanual.

- Create a paper installation map to record Enphase Microinverter (and Enphase Battery, if installed) serial numbers and positions in the array. Peel the removable serial number labelfrom each device and affix it to the respective location on the installation map.
- Peel the removable label from the bottom of the IQ Gateway and affix it to the installation map.
- Always keep a copy of the installation map for your records.

NOTE: If you are setting up the IQ Gateway to monitor a non-Enphase PV system, you do notneed to create an Enphase installation map.

Installation Sequence

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┌─────────────────────────────┐
│  1. Choose a location for the│
│     IQ Gateway Metered       │
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              │
              ▼
┌─────────────────────────────┐
│  2. Provide a power          │
│     connection               │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│  3. Install CTs, if needed   │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│  4. Optional: Install DRM &  │
│     a central disconnect     │
└─────────────────────────────┘
              │
              ▼
┌─────────────────────────────┐
│  5. Energise the IQ Gateway  │
└─────────────────────────────┘
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              ▼
┌──────────────────────────────────┐
│  6. Launch Enphase Installer App  │
│     to create activation by       │
│     entering system details       │
└──────────────────────────────────┘
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┌──────────────────────────────────┐
│  7. Detect the available devices  │
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┌──────────────────────────────────┐
│  8. Switch ON IQ Gateway and      │
│     ensure it's connectivity via  │
│     AP mode and Installer app     │
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              ▼
┌──────────────────────────────────┐
│  9. Update IQ Gateway (if needed) │
│     and provision devices         │
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┌──────────────────────────────────┐
│  10. Verify meter configuration   │
└──────────────────────────────────┘
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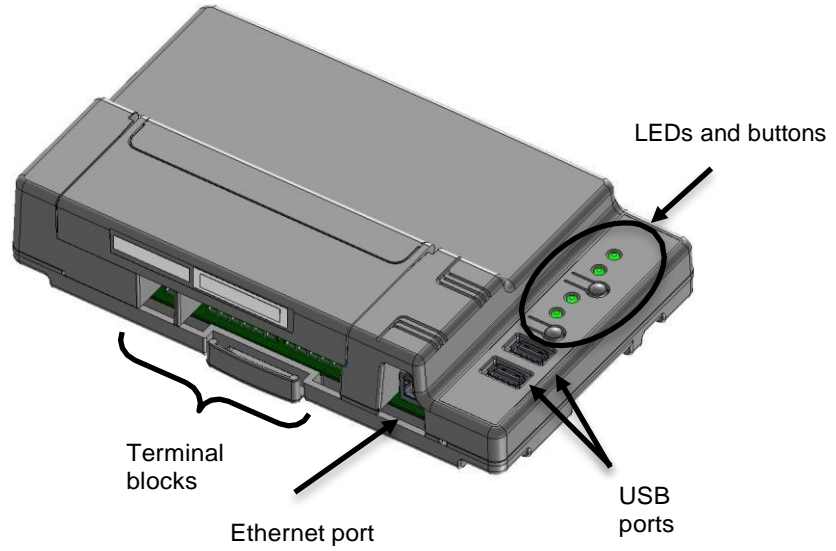
Installing the IQ Gateway

To install the IQ Gateway, perform the following steps and refer to this diagram:

IQ Gateway Metered (model number ENV-S-EM-230)

1. Choose a Location for the IQ Gateway

a. Install the IQ Gateway near the switchboard. This ensures that the IQ Gateway receives the strongestpossible communications signal from each device. When installing the IQ Gateway Metered, consider the length of the CT leads when choosing the location. If you need to extend the CT leads, see "Extend CT Leads, If Needed" on page 16.

b. Install the IQ Gateway in a protected dry space (such as a garage, attic, basement, or other cool, drylocation). If the IQ Gateway is hard-wired outdoors, you must install it inside an IP54-rated, (or better) enclosure with conduit attachment. Use an appropriately rated enclosure if hard-wiringindoors.

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

c. Mount the IQ Gateway horizontally using the included DIN rail.

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

d. To **wall-mount,** use two appropriately sized screws and a screwdriver. Mount the DIN rail first, and then clip the IQ Gateway to the DIN rail.

2. Provide a Power Connection

The IQ Gateway Metered (ENV-S-EM-230) uses terminal blocks for power and metering connections. It does not include an AC power cord, and you must hard-wire it. When you hard-wire the IQ Gateway outdoors, you must install it in an IP54-rated, or better enclosure with conduit attachment. Usean appropriately rated enclosure if hard-wiring indoors.

DANGER! Risk of electric shock. Be aware that installation of this equipment includes risk of electric shock. If you wire the IQ Gateway at the sub-board, always de-energise the sub-boardbefore beginning wiring.

a. Depending on the number of phases you will wire, use a one-, two-, or three-pole (20 A maximum)circuit breaker for the supply wiring.

b. Make sure supply wiring is 2.5 mm^2 copper rated at 75º C or better.

c. Locate the screw on the terminal block door, and loosen it with a screwdriver to unlock the doorand flip it open.

d. Depending on the number of phases to wire, connect Line 1 to L1, Line 2 to L2, Line 3 to L3, andNeutral to N, as required.

e. Tighten all connections to 0.56 Nm.

f. Refer to the following wire colour table, if needed:

Output from Enphase PVsystem	Colour code (EU)	Colour code (AU)
Brown – L1 (Active) Black – L2 (Active) Grey – L3 (Active) Blue – Neutral Green/Yellow – Ground/PE	Brown – L1 (Active)Black – L2 (Active) Grey – L3 (Active) Blue – Neutral Green – Ground/PE	Red – L1 (Active) White – L2 (Active) Blue – L3 (Active) Black – Neutral Green – Ground/PE
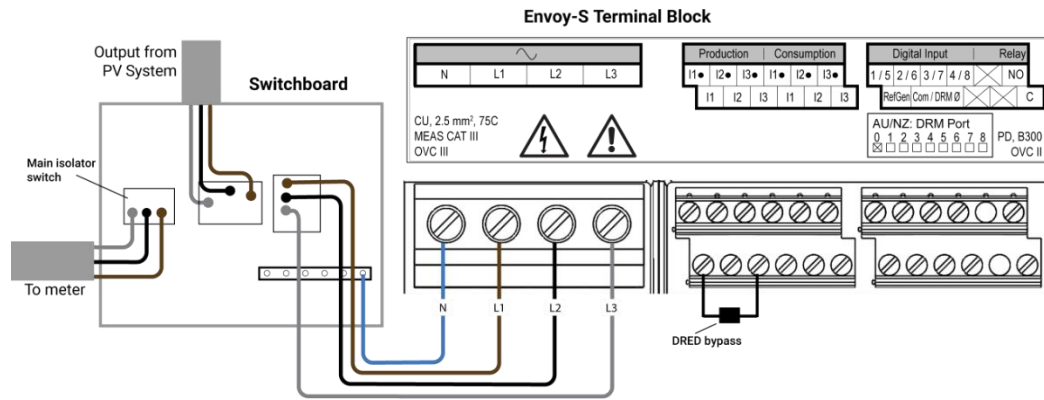
3. Install CTs for Metering

The IQ Gateway Metered (ENV-S-EM-230) uses terminal blocks for power and metering connections.

	NOTES:	When wiring the IQ Gateway for production and consumption metering, be sure to install the current transformers (CTs) exactly as described for your application.
		When using CTs, do not energise the PV system before the CT installation is complete.
		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.
		You can run more than one wire through the CT if all wires are on the same phase and they fit the opening in the CT.

Install one split-core CT (model CT-100-SPLIT-ROW) per monitored phase for production metering and one split-core CT (model CT-100-SPLIT-ROW) per monitored phase for consumption metering. Use a protected route in conduit (raceway) for the CT wires to the IQ Gateway. If you need to extend the leads (up to 148 meters, see "Extend CT Leads, If Needed" on page 16.

Preparation

a. Before running the CT wires through conduit, use coloured tape to mark each of the CTs and thefree ends of its wires, marking each with a different colour. You can run multiple CT wires through a single conduit.

b. When installing CTs, it is important to match CT and voltage sense phases. Be sure to consistently identify all the AC lines at three points: the main switchboard feed, the IQ Gateway, and the solar production circuit breaker. Wire colours may not always consistently identify Lines 1, 2and 3. If in doubt, use a multimeter to check.

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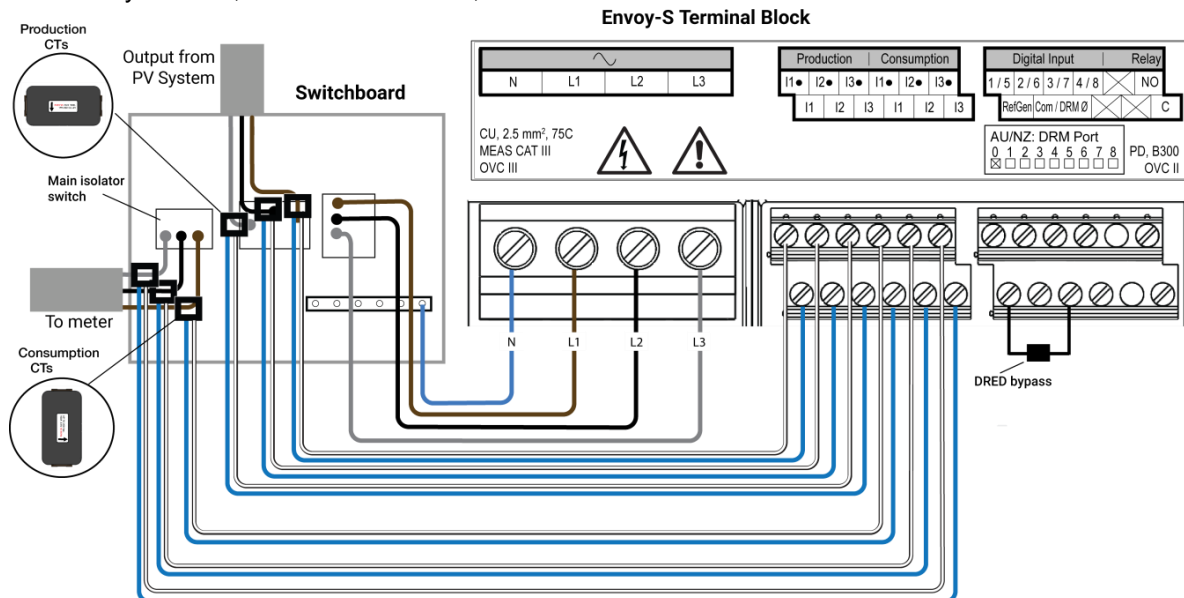
Install the CT(s) for Production Metering

Install one split-core CT for each monitored phase to provide production metering. For single-phase, connect only L1. For three-phase, connect L1, L2 and L3.

DANGER! Risk of electrocution! CTs must be installed with no current flowing in the sensedcircuit. Always install CT wires in the terminal blocks before energising the sensed circuit.

DANGER! Risk of electric shock. Be aware that installation of this equipment includes risk of electric shock. If you wire the IQ Gateway at the sub-board, always de-energise the sub-boardbefore beginning wiring.

a. Locate the arrow on the CT label.
b. Take care to identify L1, L2 and L3 at the main feed to aid in corresponding L1 - L3 at the IQ Gatewayvoltage terminals (and I1 - I3 for the production CTs).
a. Connect the white wire from Line 1 to "I1•" and the blue wire to "I1".
b. Connect the white wire from Line 2 to "I2•" and the blue wire to "I2".
c. Connect the white wire from Line 3 to "I3•" and the blue wire to "I3".
d. Open and clamp each CT on the active lines (Line 1, Line 2, and Line 3, if used) of the solarproduction circuit with the arrows pointing toward the load (away from the solar array).
e. Tighten all connections to 0.56 Nm.

Install the CT for Consumption Metering (optional)

Install one split-core CT for each monitored phase to provide consumption metering. For single-phase, connect only L1. For three-phase, connect L1, L2 and L3.

DANGER! Risk of electric shock. Always de-energise circuits before wiring power and CTs.

DANGER! Risk of electric shock. Installation of this equipment includes risk of electric shock. If you wire the IQ Gateway at the sub-board, always de-energise the sub-board before beginning wiring. If it cannot be de-energised, a qualified electrician may safely install the CTas directed, making sure to connect the leads and then place the CT around the wire and latch.

WARNING! Do not install the CT in a panel where they exceed 75% of the wiring space ofany cross-sectional area within the panel or refer to local standards for guidance.

a. Make sure that the AC mains wire(s) are de-energised until you have secured the CT wires in theterminal blocks.
b. Take care to identify L1, L2 and L3.
c. Connect the white wire from Line 1 to "I1•" and the blue wire to "I1".
d. Connect the white wire from Line 2 to "I2•" and the blue wire to "I2".
e. Connect the white wire from Line 3 to "I3•" and the blue wire to "I3".
f. Open and clamp the CT on the main supply lines (Line 1, Line 2, and Line 3, if used). When theconsumption CT is on the line (active) conductor, the arrow should point toward the load (awayfrom the grid).
g. Tighten all connections to 0.56 Nm.

NOTE: Only run active conductors through the CT. The CT can monitor multiple active conductors.

Extend CT Leads, If Needed

If needed, an electrician may extend the CT leads using the following guidance:

WARNING! To extend the CT leads, the electrician must use appropriately rated, 0.75 mm^2 to 2.5 mm^2, twisted pair wire and install it in accordance with all applicable electrical codes.

The electrician may add as much as three ohms round trip resistance to the CT or up to 1.5 ohms per wire. For reference, the following maximum lengths at 75° C by gauge are:

- 64 meters of 0.75 mm^2 7-strand Cu = 1.5 ohms
- 85 meters of 1 mm^2 7-strand Cu = 1.5 ohms
- 128 meters of 1.5 mm^2 7-strand Cu = 1.5 ohms
- 213 meters of 2.5 mm^2 7-strand Cu = 1.5 ohms

Resistance figures may not be appropriate for all geographies or installation conditions. A qualified electrician must determine the wire gauge and type to obtain a maximum round trip resistance of three ohms.

Select wire that is code type and rated for voltage and temperature for the specific application. Mechanically protect the wires in a code type conduit or raceway. Use certified connectors for splices and insulate splices from one another and from the raceway, conduit, or junction box, if metallic.

Buried wires must be certified for direct burial and follow the code for installation. Do not bury splices unless in a certified junction box rated for the application and use a certified moisture resistant connection method.

4. If Required, Install DRM Support and a Central

The multiphase IQ Gateway Metered supports DRM (Demand Response Management). If required for your region, an electrician can install DRM support and add a central disconnect. The IQ Gateway (ENV-S-WM-230) has a pre-installed 15kΩ resistor that provides DRED bypass when DRED is not required.

NOTE: In systems where a central disconnect (contactor) is installed, you must use Installer App to configure the meters as described in Step 8 before device discovery can complete.

To configure DRM support use the terminals shown:
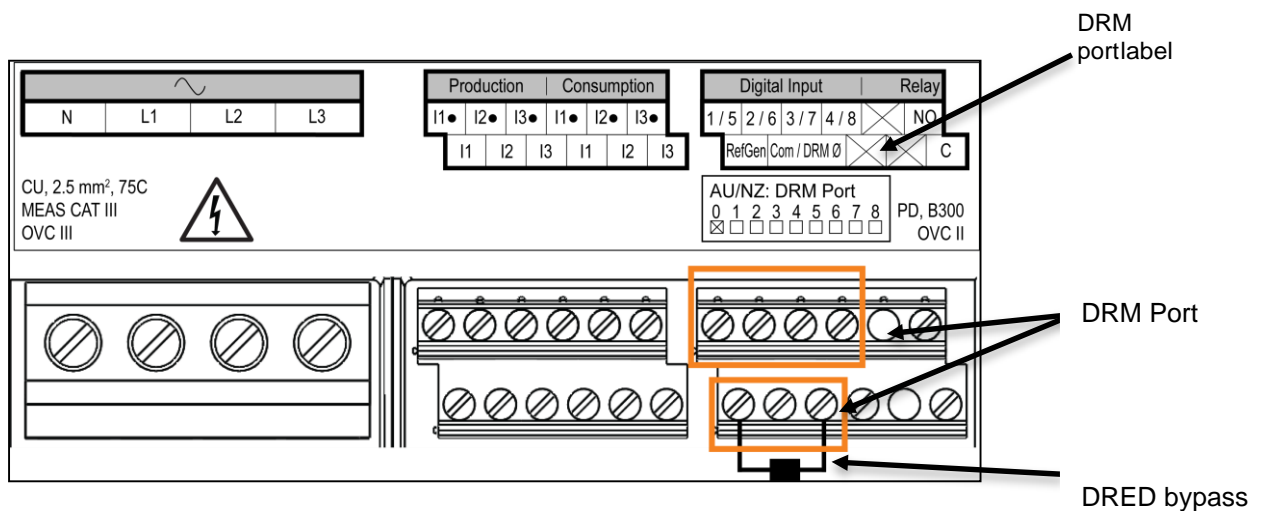
5. Energize IQ Gateway, Launch Enphase Installer App and start system activation

a. Close the terminal block door and secure it with the screw.

b. Turn on the circuit feeding the IQ Gateway Standard.

c. Open Enphase Installer App. To create an activation for a new system tap the plus button on the bottom right corner of the screen.

d. Tap System Details to enter the required information.

e. Complete the system activation in Installer App by filling the following

- Enter a name for the system to be installed. Optionally, Installer Reference ID may be added for the system.

- Select the owner type: Residential, Commercial or Other from the owner drop down menu.

- If you are a third party installer, select the Third Part Owned check box option.

- Complete the address fields.

- Select the country and state from the drop down menu and then enter the city and zip code.

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

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

6. Adding Devices and Array to the system

The unique serial number for each device is entered in this step. It is recommended that you enter the devices by scanning the barcode/QR code.

a. Tap ' Devices and Array ' in the home page.

b. Add the count of devices present in the system. You can edit the count anytime

c. Scan devices serial numbers from QR code/Bar code in respective device section. You can also enter the serial numbers manually if you're unable to scan.

d. For microinverters, turn on the 'Auto' feature to scan all your inverters quickly. In 'Auto' mode, after one scan, point your scanning device at subsequent serial numbers to automatically populate them. After scanning all inverters, tap 'Close Scanner'

e. You can also create arrays and assign Microinverters to Arrays using Enphase Installer App Array Builder

7. IQ Gateway Connectivity

a. Tap on the 'Envoy Connectivity' in the installer home page.

b. If the 'IQ Gateway' and the 'Enphase Installer App (or the phone icon) are not connected, please follow the following steps.

- On the IQ Gateway, press the AP mode button (first button from left) 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 Installer App 'Envoy Connectivity' page and connect.

c. If the 'IQ Gateway' and 'Enphase Installer platform (or the cloud icon)' are not connected, please follow the following steps.

- The IQ Gateway can connect to Enphase Installer platform through either Wi-Fi, Ethernet or Cellular.

- If Wi-Fi is selected, input the user name and password for the home/ office Wi-Fi.

- If connecting using Ethernet, simply plug the cable into the IQ Gateway.

8. Provisioning the devices

To provision your devices, the IQ Gateway should be in AP mode as described in IQ Gateway Connectivity section.

   a.   If a green check mark 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.

   b.   When provisioning is complete, tap 'DONE'.

9.   Upgrade the IQ Gateway software if needed

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.

   a.   All four LEDs flash red when the IQ Gateway reboots.

   b.   Once the update is finished and the PV system is installed, the IQ Gateway is ready to proceed further.

   c.   All four LEDs flash amber during boot up (approximately 3 minutes). When boot up is complete, the Device Communications LED flashes amber indicating that microinverters are not yet detected.

10. Verify Meter Configuration

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

   a.   Tap on the 'Meter Configuration' to start configuring consumption and production meter.

   b.   Subsequently, tap on the 'Production Meter' to start configuring production meters. A pop- up appears asking to follow the meter wizard to verify your CT configuration.

   c.   Select 'Yes' to proceed.

   d.   After clicking you should be able to see a positive meter reading if your CT installations are correct and PV is switched on and producing.

   e.   Ensure the PV is switched on and battery circuit is switched off , to select the respective check box. The wizard will warn you if there is any issue found with the CT installation, like negative reading or load imbalance across different phases.

   f.   Resolve any issues and then tap 'NEXT'.

   g.   To verify the readings from PV production, switch off the PV and select appropriate check box. Your readings should decrease to a value close to zero.

   h.   Tap 'Enable production meter' to finish configuration of production meter.

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

   a.   Tap on the 'Meter Configuration' to start configuring consumption and production meter.

   b.   Subsequently, tap on the 'Consumption Meter' to start configuring production meters. A pop- up appears asking to follow the meter wizard to verify your CT configuration.

   c.   Select 'Yes' to proceed. In the first step of consmption motor wizard, the total home load reading is displayed.

   d.   Ensure the PV and Battery circuits are swiched off, to select appropriate checkbox. Then tap on 'Next'.

   e.   Turn on a known load, to ensure that the reading on the screen increases. Select the checkbox and tap 'Next'.

   f.   Confirm the reading has increased and tap 'YES'.

   g.   Switch on the PV to observe PV production. Select the checkbox and tap to start the timer.

   h.   Ensuring that all the PVs are producing, tap 'NEXT'.

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.

    a.   Tap 'Summary' in the Enphase Installer App Home Page. The system report is displayed on the screen, which consists of list of devices, their serial numbers, their last reports, and information about the grid profile applied to the devices.

    b.   Tap 'SHARE' on the right top corner to share the report as needed.

    c.   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 better experience.

 15 Nov, 2022

Activate Monitoring

Register the IQ Gateway to monitor the Enphase devices in Enphase Installer App at Enphase Installer App.enphaseenergy.com. Onceyou have registered the system and successfully installed the IQ Gateway, Enphase Installer App sets up an account for the site owner. When you complete the registration and installation, Enphase sends account information to the site owner so that they can log in to the Enphase Installer App website and view system performance.

Method A: If the IQ Gateway is Associated with a System in Installer App

a. On your mobile device, go to your Wi-Fi settings and disconnect from the IQ Gateway's AP network.This should restore Internet connectivity to your device.

b. Return to the Installer App and tap the **Sync** button on the System Overview screen.

c. When you have access to a computer with Internet access, log in to Enphase Installer App and select thesystem name from the Activation List on the dashboard.

d. From the activation form, open Array Builder. To see the Array Builder demo, go toenphase.com/support/videos.

- If you used Installer App to build arrays and scan device serial numbers,the array(s) are built. Make any necessary adjustments in Array Builder.

- If you did NOT use Installer App to build arrays and scan device serial numbers, create the virtual array in ArrayBuilder using the installation map as your reference. (You may need to wait if the devices have not yet reported to Enphase Installer App.)

Method B: If the IQ Gateway is NOT associated with a System in Installer App

a. Log into Enphase Installer App and click **Add a New System** from the installer dashboard.

b. Enter the System, Installer, Owner, and Location information.

c. Enter the IQ Gateway serial number.

d. Click **Save** to submit the form.

e. After the devices have reported to Enphase Installer App, open Array Builder from the activation form, andcreate the virtual array, using the installation map as your reference. To see the Array Builder demo, go to enphase.com/support/videos.

View System Performance inEnphase Installer App

Once the array is built and the systemis activated, you can log in to Enphase Installer Appto view site data. Enphase Installer App displays a graphic representation of the PV system. It also shows detailed currentand historical performance information.
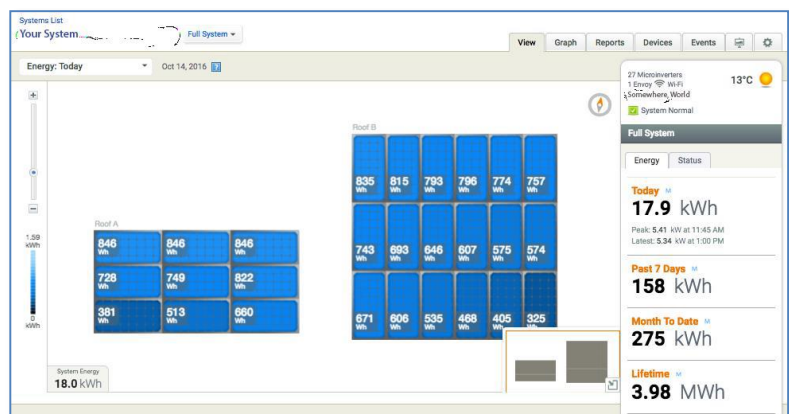
IQ Gateway Operation

IQ Gateway Displays and Controls

You can track system installation progress with the Enphase Installer App mobile 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 amber when troubleshooting with Installer App is required.

— **Network Communications LED:** Green when IQ Gateway is connected to Enphase Installer App.

— **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 5 seconds to start WPS connection to a router.

— **Power Production LED:** Green when microinverters are producing power.

— **Device Communications LED:** Green when microinverters are communicating with IQ Gateway.

— **Device Scan Button:** Press to start/stop 15-minute scan for microinverters over the power line.

IQ Gateway LED States

LED	State	Description
All	Flashing amber in unison	The IQ Gateway is booting up
	Flashing green sequentially	Software upgrade in progress
Network Communications ⌂	Solid green	Communicating with Enphase Installer App
	Flashing green	WPS connection in progress or the IQ Gateway is attempting to connect to Enphase Installer App
	Solid amber	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
Power production	Solid green	All communicating devices are producing
	Flashing green	Device upgrade in progress
	Solid Amber	At least one device is not producing
	Off	Devices are not producing or communicating (low light or night time)
Device Communications	Solid Green	All devices are communicating
	Flashing Green	Device scan in progress
	Solid Amber	At least one device is not communicating
	Off	Devices are not communicating (low light or night time)

LED Behaviour at Initial Start Up

When the IQ Gateway starts up for the first time, it goes through the initial boot sequence. During this initial boot sequence, all the IQ Gateway LEDs are flashing amber. If the IQ Gateway retrieves a software update soon after connecting to the Internet, the LEDs flash green sequentially during the upgrade.

WARNING! Risk of Equipment Damage. Do not remove power from the IQ Gateway if the LEDsare flashing green sequentially. This indicates that a software upgrade is in progress.

Initial Communications Check

The IQ Gateway normally indicates no Internet connection for two to three minutes after the first start up. Itthen sends the first report to Enphase Installer App. When Enphase Installer App responds, the Network Communications LED lights solid green, indicating an Internet connection to Enphase Installer App.

More about Device Communications States

A detected Enphase device is one that has been discovered via the IQ Gateway's device scan or provisioned via Enphase Installer App.

The states of the Device Communications LED have slightly different meanings, depending on whether the installer has provided an expected number of devices. If you have NOT provided the expected number of devices either through the Activation form or in Installer App, the LED displays asdescribed in the "**No expected number provided"** column. If you have provided the expected number of devices in the Activation form or in Installer App, this LED displays as described in the "**Expected number provided"** column. If the IQ Gateway has been provisioned with the serial numbers of the devices, thisdisplays as described in the "**With provisioning"** column.

State	No expected number provided	Expected number provided	With provisioning
Green Solid	All **discovered** devices are communicating.	The **expected** number of devices was discovered and all are communicating.	All of the **provisioned** devices are communicating.
Amber Solid	At least one of the discovered devices is not communicating.	The number of devices communicating is not equal to the number expected (e.g., 0/12, 1/12, 11/12, or 13/12).	The devices that are communicating are not the same as those provisioned.

Initiate a New Scan for Devices

The IQ Gateway identifies each device by its unique serial number. If you add more devices to an existing system or replace an Enphase Microinverter or Enphase AC Battery, you can run a scan to detect the newdevices. To initiate a scan after you add new devices to an existing Enphase system, perform the following steps.

1. Press the **Device Scan** button. The IQ Gateway begins a 15-minute scan to identify all of the Enphase devices deployed at the site. The Device Communications LED flashes greenduring the scan. Alternatively, you can initiate a scan using Installer App.
2. Log into Enphase Installer App to check for the new device and use Array Builder to add the new deviceto the virtual array.
3. After the device is detected, it is best to disable the scan. To do this, press the IQ Gateway **Device Scan** button again.

Connecting to IQ Gateway

There are several ways to connect with the IQ Gateway to check status or do configuration tasks:

- Connect wirelessly using Installer App.
- Connect remotely using Enphase Installer App.
- Connect using a computer or mobile device with the IQ Gateway local interface.

Connect Using the Installer App

The Enphase Installer App is a mobile app that provides installers with onsite system configuration capabilities.

Options for establishing a connection between the Installer App and the IQ Gateway are:

- Connect the mobile device to the same LAN as the IQ Gateway using the site's wireless router.

- Use the IQ Gateway to create a wireless Access Point (AP).

Method A: Use the Site's Wireless Router to Connect to the IQ Gateway

To use the site's wireless router, select **Settings** on your mobile device and then select **Wi-Fi**. Tap thenetwork you want to join from the list of available networks.

Method B: Create a Wireless Access Point

You can connect to IQ Gateway without using the onsite router by creating a wireless Access Point (AP). Usethe IQ Gateway built-in Wi-Fi functionality to do this. AP mode supports use of a mobile device and times outafter eight hours. The AP Mode LED 🔆 lights solid green when AP mode is active. AP Mode allows you toconnect the IQ Gateway to Installer App so that you can track system installation progress.

To start an AP session:

1. Briefly press the AP Mode button to start an 8-hour AP session on the IQ Gateway. The AP ModeLED 🔆 lights solid green when AP mode is active.

AP Mode LED

AP Mode

button

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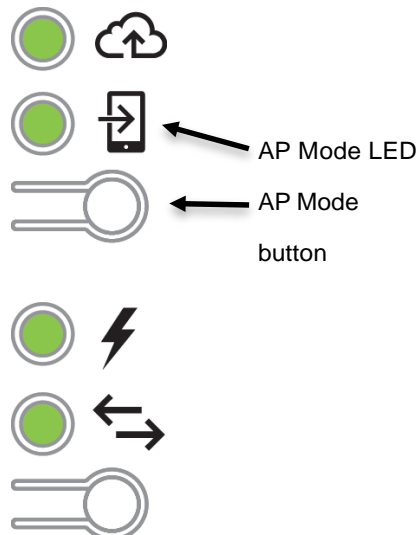
2. The AP Mode LED ⊡ remains solid green when AP mode is enabled and active. AP mode timesout after eight hours. This LED is usually off during normal IQ Gateway operation.

3. Select Settings on your mobile device and then select Wi-Fi. Tap "IQ GATEWAY_nnnnnn" (where "nnnnnn" represents the final six digits of the IQ Gateway serial number) from the list of availablenetworks.

Complete the Connection to IQ Gateway with Installer App

Once your mobile device and the IQ Gateway are on the same LAN, you can connect to the IQ Gateway.

1. In Installer App, go to the Systems tab and go to Step 4 (IQ Gateway connectivity).

2. Make sure your device is connected to IQ Gateway by looking for the green check mark between the Installer App (or the phone icon) and the IQ Gateway as shown:
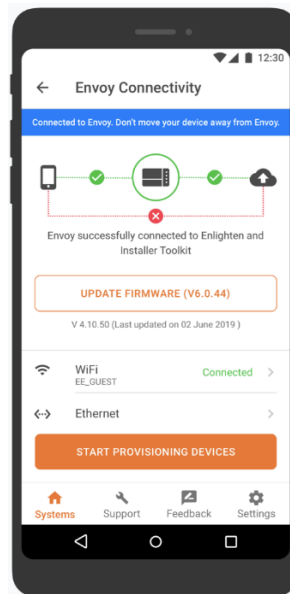
Refer to enphase.com/installer-App/ for more information on the Enphase Installer App.

Connect Remotely Using Enphase Installer App

To check status of Enphase equipment, do the following:

1. Log on to Enphase Installer App to view the array. Click **Devices**.

2. A list of equipment appears including the IQ Gateway(s) and all of the devices that the IQ Gateway has detected. The column on the far right lists the status of each device.

3. To view status information for the IQ Gateway, click the IQ Gateway serial number.

4. This screen indicates status for web communication, power line communication and device count.
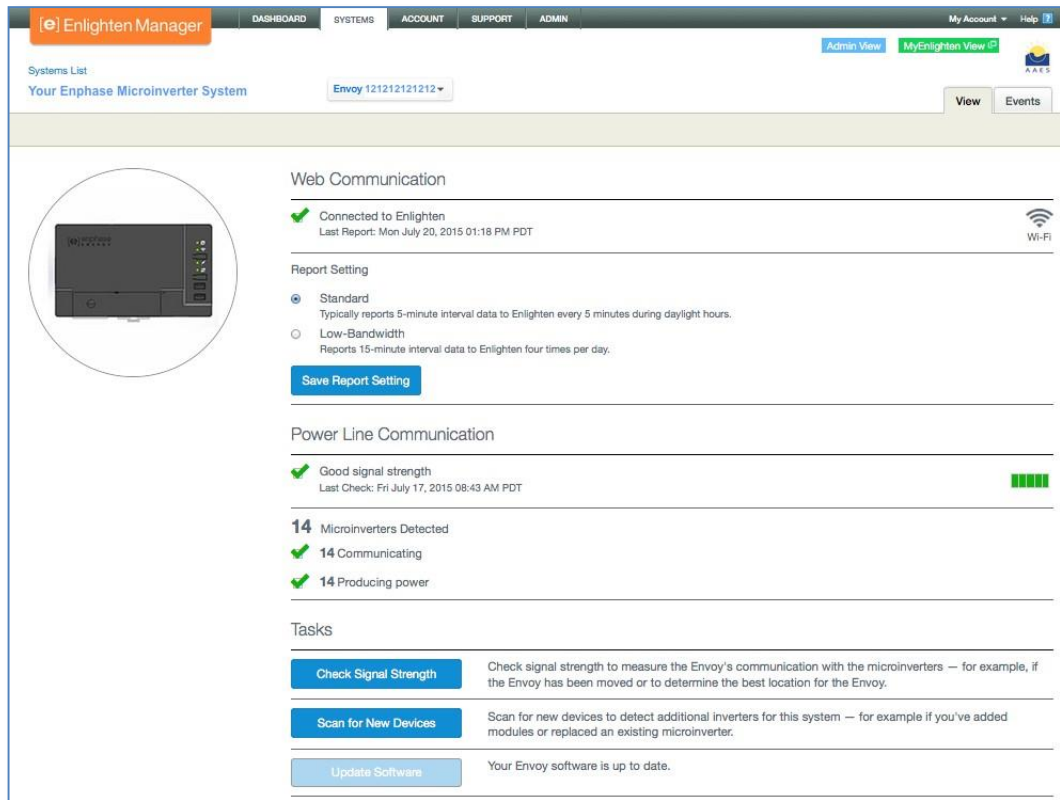
5. Check the report setting. The IQ Gateway sends regular reports to Enphase Installer App over the Internet connection. The default reporting mode for the IQ Gateway is **Standard** (high-bandwidth). If the site uses the Enphase Mobile Connect modem, this setting is locked to **Low-Bandwidth**. Low bandwidth mode reports 15-minute interval readings and event data to Enphase Installer App four times a day. Standard reporting sends five-minute interval data to Enphase Installer App every five minutes during daylight hours. The Enphase Installer App view is refreshed every 15 minutes.

6. From here you can choose to **Check Signal Strength** or **Rescan for Devices** as needed. When checking signal strength, allow up to 15 minutes for a response.

7. If the text to the right of the Update Software indicates that the IQ Gateway requires an update, click **Update Software** and follow the prompts.

Connect Using the IQ Gateway Local Interface

The IQ Gateway relays data to Enphase Installer App using an Internet connection. However, even if there is no active Internet connection, you can communicate directly with the IQ Gateway using the Ethernet port and a personal computer or mobile device with a web browser. With your computer or mobile device connectedto the same LAN (local area network) as the IQ Gateway, you can access the IQ Gateway interface.

1. Use the IQ Gateway's built-in Wi-Fi or connect an Ethernet cable between a computer and theIQ Gateway.

2. Open an Internet browser application on a computer or mobile device connected to the sameLAN as the IQ Gateway.

3. In the browser address window, enter **http://IQ Gateway.local** to view system details and status.

   If there are additional IQ Gateway units on the network, you can access them by entering the following strings in the browser window:

   - http://IQ Gateway-2.local
   - http://IQ Gateway-3.local, and so on

   Once the browser has successfully connected with the IQ Gateway, the homescreen is displayed in the browser window.

View Production Readings

The production readings at the top of the paneshow current and lifetime production values. The first value shows today's production, whilethe second shows the total production for thelifetime of the system.

- If your system uses an IQ Gateway Metered, it displays production meter readings. You can also view productionas reported by the microinverters by selecting the arrow to the left of the words **Microinverter Production**.
- If your system uses an IQ Gateway Standard gateway, the system displaysproduction values reported by the microinverters.

View or Change Monitoring Settings

Under **Monitoring**, you can view web communication status.

To access the **Cellular**, **Wi-Fi**, **Ethernet** or **Diagnostic Tools** pages, select the **>** to theright of the desired page name. You will be prompted to enter the following login credentials:

- Username: IQ Gateway
- Password: nnnnnn (where nnnnnn are the last six digits of the IQ Gateway serial number)
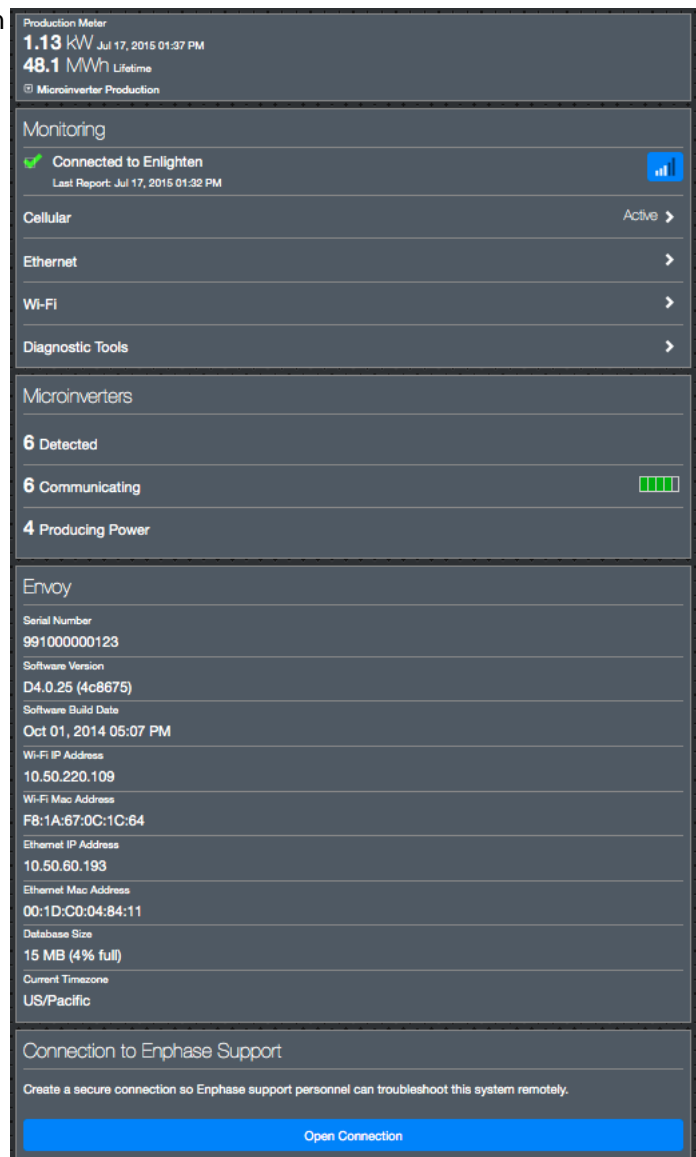
View Cellular Connection Information

When the IQ Gateway is using the Mobile Connect modem to connect with Enphase Installer App, select **>** to view CellularConfiguration information.
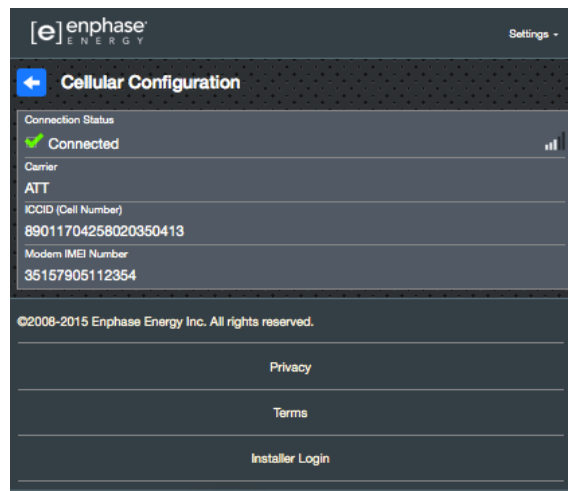
View or Change Ethernet Settings

When the IQ Gateway is using Ethernet to connect with Enphase Installer App, select **>** to view Ethernet configurationinformation. From here you can set up for static IP or reset the IP address, if needed.
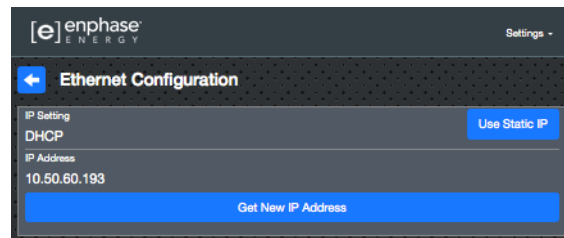
WARNING: Do not change the IQ Gateway DHCP setting to use a static IP address unless youalso reserve the same IP address on the broadband router. See the section on DHCP reservations in the router instructions. Failure to reserve the static IP address on the router may result in duplicate IP addresses and intermittent Internet connection problems with the IQ Gateway.

- To use a static IP address, select **Use Static IP** and enter information as needed.
- Select **Update**. The application asks you to confirm:
  This may interrupt communications with the IQ Gateway and require you to reconnect.
- Select **OK** to continue, or select **Cancel**.

View or Change Wi-Fi Settings

When the IQ Gateway is using Wi-Fi to connect with Enphase Installer App, select **>** to view Wi-Fi configuration information. From here you view Available Networks (WPS and AP), **Update Country**, **Enable AP Mode**, and view Device information.

If you replace the broadband router at the installation site, you need to update the connection information on the IQ Gateway. To do this:

- Select **Connect Other Network**.
- Enter the new **Wireless Network Name (ESSID)** and **Security** code.

If you need to disconnect the IQ Gateway from a Wi-Fi network:

- Select **More Info**.
- Click **Forget this Network**.

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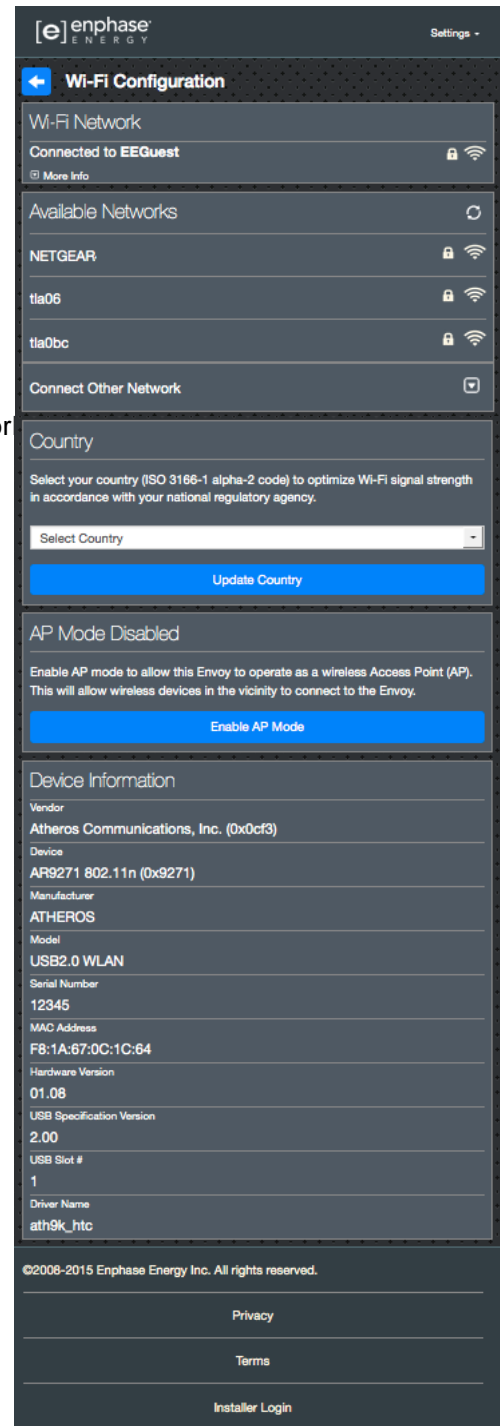
Diagnose Network Connection

Select **Diagnostic Tools** to ping the IQ Gateway, check networkconnectivity, and check the network route.

Ping: To check that the router or network host connected tothe IQ Gateway:
- Select **Ping.**
- Enter the IP address or url for the router or networkhost.
  The application displays a loading message until results are returned. If the router or network host is connected to the IQ Gateway, the Ping returns a successmessage. If the router or network host is not connected to the IQ Gateway, the Ping returns the following:
  ping: bad address <xxx>

Check Network Connectivity: To check network connectivity details for the IQ Gateway:
- Select **Check Network Connectivity.**
  The application displays a loading message until results are returned. When the results return, the application displays a collection of basic networkdiagnostic checks and results for the IQ Gateway.

Check Network Route: To see the IQ Gateway's path to the Internetfor all network interfaces:
- Select **Check Network Route.**
  The application displays a loading message until results are returned. When the results return,the application displays a collection of routing details for the IQ Gateway's path to the Internet.

 15 Nov, 2022
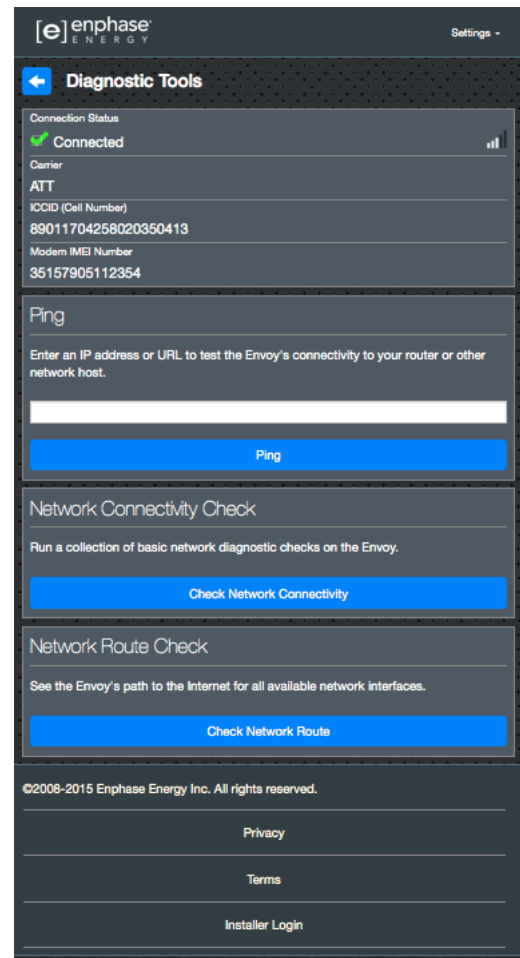
View Microinverter Information

Under **Microinverters**, the screen displays:
- The number to the left of the word **Detected** indicates the number of microinverters detected by this IQ Gateway.
- The number to the left of the word **Communicating** indicates the number of microinverters communicating with this IQ Gateway.
- The number to the left of the words **Producing Power** indicates the number of microinverters communicating with this IQ Gateway.

View IQ Gateway Information

Under **IQ Gateway**, the screen lists the IQ Gateway serial number, time zone, and connection information that varies depending on Internet connection type, and version information.

Open a Connection for Enphase Troubleshooting

Under **Connection to Enphase Support**, there is an option to open a connection to allow Enphase to perform remote troubleshooting If you contact Enphase Customer Support, Enphase personnel may ask you to open a secure connection for diagnostic purposes.
- To open secure connection so Enphase support personnel can remotely troubleshoot this system, select **Open Connection**.
- To close the secure connection, select **Close Connection**.

Production Meter
1.13 kW Jul 17, 2015 01:37 PM
48.1 MWh Lifetime
⊞ Microinverter Production

Monitoring
✔ Connected to Enlighten
  Last Report: Jul 17, 2015 01:32 PM

Cellular   Active ›
Ethernet   ›
Wi-Fi   ›
Diagnostic Tools   ›

Microinverters
6 Detected
6 Communicating
4 Producing Power

Envoy
Serial Number
991000000123
Software Version
D4.0.25 (4c8675)
Software Build Date
Oct 01, 2014 05:07 PM
Wi-Fi IP Address
10.50.220.109
Wi-Fi Mac Address
F8:1A:67:0C:1C:64
Ethernet IP Address
10.50.60.193
Ethernet Mac Address
00:1D:C0:04:84:11
Database Size
15 MB (4% full)
Current Timezone
US/Pacific

Connection to Enphase Support
Create a secure connection so Enphase support personnel can troubleshoot this system remotely.

Open Connection

Troubleshooting

The following sections describe possible problems and solutions.

WARNING: 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. If the IQ Gateway fails, contact Enphase Customer Support for assistance (enphase.com/global/support-request). Warranty void if cover removed. Refer servicing to qualified personnel.

Device Detection Issues

Troubleshoot power line communication issues as follows.

Issue: Installer App Shows "Cross Domain Traffic Reported"

This means that communications from another IQ Gateway(s) have been detected. To prevent this issue:

- When multiple IQ Gateway units exist on a common switchboard or transformer, commission only one IQ Gateway system at a time during installation.
- When multiple IQ Gateway units on a common switchboard, use power line filters and separate the conduits and wires by at least 32 cm (12 inches).

If this alert persists or if the Installer App Devices screen (or Enphase Installer App) shows more devices than expected, contact Enphase Customer support at enphase.com/global/support-request.

Issue: Device Communications LED is Solid Amber

If the Device Communications LED lights solid amber, 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 difficulty communicating over the power lines. To troubleshoot this issue:

- Check the 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 the PV module DC voltage is within the allowable range for the microinverter.

Issue: Installer App Detects Fewer Devices than Expected

The **Microinverters detected** count shown in Installer App is an indication of the number of online microinverters producing power, reporting in to the IQ Gateway, and not having any error conditions. If this number is lower than expected, it may indicate that the IQ Gateway is not done scanning/discovering the entire array. Alternatively, it may indicate that the IQ Gateway is having difficulty communicating over the power lines. It could also be a result of low light levels or that the PV module voltage is too low for the microinverter to power up. To troubleshoot the issue:

- Check Enphase Installer App or use the Installer App to connect to the IQ Gateway to see if any devices are not reporting in to the IQ Gateway or having any error conditions.
- Check the circuit that the IQ Gateway is using. Appliances sharing a circuit with the IQ Gateway may interfere with power line communication.

- Relocate your IQ Gateway as close to the switchboard as possible. This ensures that the IQ Gateway receives the strongest possible signal from each device.
- If this problem occurs when light levels are low, try again during daylight hours.

Issue: No Devices are Reporting

Check for the following conditions.

Has a device scan been run while the array was active? A device scan may have been run while the array was not connected to the grid or when the array was not powered by sunlight.
- Run another scan during daylight hours.
- Check that the circuit breaker(s) for the PV array are in the "ON" position. For the IQ Gateway to communicate with the devices, the PV circuit breakers must be in the "ON" position at the switchboard.
- Verify that the PV modules are connected to the microinverters.

Is the IQ Gateway well located? The IQ Gateway must be near the primary switchboard or the array's downstream sub-board. If installing the IQ Gateway Standard:
- As an alternative if signal strength is poor, power the IQ Gateway from the solar production circuit (where local electrical code allows for monitoring equipment on the same circuit). This provides the best possible power line communications. The IQ Gateway must be located indoors (a garage, attic, basement, or other cool, dry location) or in an **NEMA 3R or better enclosure**. Remember that the IQ Gateway must also have an Internet connection.

Is the system energised? PV modules power microinverters, PV modules provide power only during daylight hours, and microinverters communicate only when powered.
- Run another scan during daylight hours.
- Check that the circuit breaker(s) for the PV array are in the "ON" position. For the IQ Gateway to communicate with the microinverters, the PV circuit breakers must be in the "ON" position at the Switchboard.
- Verify that the PV modules are connected to the microinverters.

Is there a phase imbalance?
- Ask the electrician to measure the conductors and neutral line to verify that the phases are balanced. If the phases are not balanced, electricians must recheck the wiring.

Is the IQ Gateway wired into a circuit on the primary switchboard while the PV circuit breakers are on a downstream sub-board? The primary switchboard is full and doesn't have additional capacity to add circuit breakers.
- Add a sub-board with a small subset of circuit breakers.
- Hard wire the IQ Gateway into that sub-board, so that it can be close to the PV circuit breaker.

Issue: Installer App Indicates that Scanning is Inhibited

It is best to leave the IQ Gateway in this condition for normal operation. However, if you need to re-enable scanning (for example, if you replace a device) contact Enphase Customer Support (enphase.com/global/support-request).

Power Production Issues

Issue: Power Production LED is solid amber

The Power Production LED ⚡ is solid green when all microinverters are producing, flashes green when a device upgrade is in progress, flashes amber when devices are not yet detected, or becomes solid amber when any microinverter that is expected to produce is not. Check in Installer App to see which microinverters are affected.

- If none of the microinverters are 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 Switchboard.
- If all of 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, first check to see that the AC connectors are fully seated in the Engage Cable connectors. Next, check that each module is meeting the required start-up voltage for the microinverter (usually 22 V). A PV module that is failing or that is undersized may not generate enough power for AC conversion.
- Refer also to "Device Detection Issues" on page 34 because the microinverters will not report production if they are not communicating with the IQ Gateway.

Internet Connection Issues

To the Local Area Network (LAN), the IQ Gateway is just another host on the network, much like a personal computer. Enphase offers technical support at enphase.com/global/support-request for IQ Gateway issues, but Enphase's Support responsibility does not extend to the premises network or LAN.

The IQ Gateway must obtain a DHCP (Dynamic Host Configuration Protocol) IP address and have a route to the Internet. The IQ Gateway will request this IP address from the broadband router during the power-up sequence. Two small green LEDs on the Ethernet port indicate Internet link and activity. One LED will be solid green, and the other will blink every few seconds.

Issue: Network Communications LED is Amber or Off

When the IQ Gateway first boots up, it is configured to perform a DHCP broadcast, requesting an IP address from a DHCP source. This source can be a server/computer, but almost all consumer-grade broadband routers also provide DHCP services as well. This is the usual source of IP addresses for network hosts (computers, laptops, and the IQ Gateway). When the Network Communications LED ⟳ is solid amber, the IQ Gateway has a local network connection only and failed to connect to Enphase Installer App after its scheduled reporting time (five minutes). When the LED is off, there is no network connection.

If you are using the Enphase Mobile Connect modem and the Network Communications LED ⟳ remains off or lights solid amber, see Troubleshooting in the *Enphase Mobile Connect Installation Guide.* For any connection method, you can troubleshoot network issues with the Installer App mobile app by tapping the Network button, then Diagnostic Tools.

- Allow 10 minutes after initial installation. If the IQ Gateway has recently received a valid IP address, the LED will likely turn green momentarily.
- Check network connectivity to the router or other DHCP server. You may also wish to contact your Internet Service Provider or refer to your router documentation for help.

- Check that you are using a broadband router and not a switch or a hub. Many hubs and switches cannot provide a DHCP lease and may not allow the IQ Gateway to connect to the web.
- Use the Installer App to "Get New IP Address", and then allow 30 to 60 seconds for theNetwork Communications LED⟳ to show solid green.
- When using the Ethernet cable, two small LEDs on the Ethernet port indicate Internet link andactivity. One LED will be solid green, and the other will blink green or yellow every few seconds. If the LEDs are not both on or blinking, try using a new Ethernet (CAT5) cable in place of the existing cable.
- Power down all units in the chain, applying power again in this order: 1) modem, 2) router,and 3) IQ Gateway. Allow a few minutes for the IP address to be reassigned.
- If you replace the broadband router, configure the IQ Gateway Wi-Fi settings for the new WirelessNetwork Name (SSID) and password.

Issue: Wi-Fi Problems

If the Network Communications LED⟳ remains off:
- If the IQ Gateway is installed in an enclosure, is the enclosure metallic? Metal enclosures impedewireless communication.
- Stucco and plaster wall construction may contain metal mesh, which can affect wirelessrange. If you cannot see your router or access point in the list on the IQ Gateway, or cannot maintain a connection, relocate the IQ Gateway to be closer to your router or access point.
- The WPS connection window may have timed out. Retry the connection steps.
- Make sure that the broadband router is operational by checking that other devices at the sitecan access the network.
- If you cannot see your router or access point in the list on the IQ Gateway, or cannot maintain aconnection, it may be necessary to add a wireless repeater to extend the network range.

If the Network Communications LED ⟳ lights solid amber:
- Power down all units in the chain, applying power again in this order: 1) broadband modem, 2) router or Wi-Fi base station, and 3) IQ Gateway.
- Make sure that the broadband router is connected to the Internet by checking that other devices at the site can access the Internet. If the other devices are not connected to theInternet, contact your ISP for assistance.

Issue: Cellular Connection Status "Not Connected"

If the IQ Gateway Network Communications LED⟳ is solid amber for longer than 12 hours and the InstallerApp displays a Connection Status of **Not Connected**:
- Unplug the modem USB cable.
- Power cycle the IQ Gateway and wait until IQ Gateway completely restarts.
- Re-connect the cellular modem USB cable.
- Allow two minutes between any removal and re-insertion of the modem cable in the mini‑USB port of the cellular modem.

Issue: IQ Gateway is not Connecting with a New Router

If you replace the wireless access point at the installation, you need to update the connection information on the IQ Gateway. To do this:
- Connect to the IQ Gateway local interface as described on page 29.
- Select **Wi-Fi**.
- Select **Connect Other Network**.
- Enter the new **Wireless Network Name (ESSID)** and **Security** code.

Local Networking Considerations

DHCP versus Static IP Addressing

If the site owner prefers not to use DHCP, you can set up the IQ Gateway to use a static IP address. Use the Installer App to configure the static IP. Refer to enphase.com/installer-App/ for more information on the Enphase Installer App.

- Tap the **Network Connectivity** menu item. This allows you to see if the IQ Gateway is using DHCP or Static-IP, and it allows you to change this setting if needed.

- Tap **Check Network Connectivity** to view the IQ Gateway connections.

> **WARNING**: Do not change the IQ Gateway DHCP setting to use a static IP address unless you also reserve the same IP address on the broadband router. See the section on DHCP reservations in the router instructions. Failure to reserve the static IP address on the router may result in duplicate IP addresses and intermittent Internet connection problems with the IQ Gateway.

MAC Filtering

Check to see if MAC filtering is in use at the site. This has nothing to do with Apple Macintosh computers, but rather, refers to the MAC (Media Access Control) address that each individual network card possesses. The MAC Address is a 48-bit address, which uniquely identifies that piece of hardware. MAC filtering is a security mechanism by which routers allow administrators to specify which devices can use the router for access to the Internet. This prevents unauthorised/unknown personnel from using the router to get to the Internet.

- An example of a MAC address would be: 00:17:F2:D6:B1:45

- MAC addresses contain six pairs of characters, including any number 0-9 and letters A-F.

- The MAC address of the IQ Gateway will begin with: 00:D0:69:

If MAC filtering is in use at the site, identify the specific MAC address of the IQ Gateway and add it to list of authorised devices on the router. The MAC addresses (wired and wireless) are located on a label on the back of the IQ Gateway.

Firewall Settings

The IQ Gateway initiates **outbound** connections to Internet servers. Such connections may be restricted by firewall rules set up on the site's broadband router. Broadband routers typically allow all outbound connections but restrict any/all inbound connections. If outbound firewall rules are applied at the site, you must configure a static IP address for the IQ Gateway and add new rules that allow outbound access as follows:

Direction	Source	Protocol	Port	Destination
OUT	<IQ Gateway IP address>	TCP	80, 443	reports.enphaseenergy.com
OUT	<IQ Gateway IP address>	UDP	80	ping-udp.enphaseenergy.com
OUT	<IQ Gateway IP address>	TCP	80, 443	home.enphaseenergy.com

The IQ Gateway connects to these servers using their DNS names. If you add firewall rules for IQ Gateway reporting, Enphase recommends using the DNS names rather than the underlying IP addresses. This is because the IP addresses are subject to change without notice.

Replacing an IQ Gateway

If problems remain after following the troubleshooting steps above, contact Enphase at enphase.com/global/support-request.

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. If the IQ Gateway fails, contact Enphase Customer Support for assistance (enphase.com/global/support-request).

- Warranty void if cover removed.
- Refer servicing to qualified personnel.

If Enphase Customer Support authorises an IQ Gateway replacement (RMA), perform the following steps.

DANGER! Risk of electrocution! CTs must be installed with no current flowing in the sensed circuit. Always install CT wires in the terminal blocks before energising the sensed circuit. Do not disconnect the CT leads from the terminal block while the sensed circuit is energised.

DANGER! Risk of electric shock. Be aware that installation of this equipment includes risk of electric **shock**. If you wire the IQ Gateway at the sub-board, always de-energise the sub-board before servicing.

1. Turn off the circuit breaker supplying IQ Gateway.
2. Disconnect the all active wires and Neutral wires from the old IQ Gateway.
3. Disconnect the Ethernet and USB cables (if used).
4. Turn off the circuit breaker supplying the PV system.
5. Unlatch the split-core of the production CT(s) (if used) before disconnecting and remove the CT(s) from the sensed wires.
6. Unlatch the split-core of the consumption CT(s) (if used) before disconnecting. Once the CT(s) are unlatched, remove it from the sensed wires.
7. Remove the IQ Gateway by unlatching it from the DIN rail.
8. When the replacement IQ Gateway arrives, install the IQ Gateway and provide power as described in "2. Provide a Power Connection" on page 13.
9. Install the new production CT and consumption CT (if used) as described in "3. Install CTs for Metering" on page 14.
10. Verify that the new IQ Gateway powers up.

BEST PRACTICE: When powered up and connected for the first time, the IQ Gateway may retrieve an automatic upgrade from Enphase. This upgrade may take up to 15 minutes. During upgrade the IQ Gateway LEDs flash green sequentially.

WARNING! Risk of Equipment Damage. Do not remove power from the IQ Gateway if the IQ Gateway LEDs are flashing green sequentially. This indicates that a software upgrade is in progress.

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11. Connect the IQ Gateway to Enphase Installer App as described in "9. Connect to Enphase Installer App" on page 20.

12. Verify that the new IQ Gateway Network Communications LED lights green within five minutes. If not, follow the network troubleshooting steps on page 36.

13. If possible, log in to Enphase Installer App and add the IQ Gateway to the Activation for this system by clicking "**Add Another IQ Gateway**" under the "**IQ Gateway"** section.

14. Verify that the new IQ Gateway starts discovering devices within 20 minutes of starting up. If necessary, use the Enphase Installer App or Device Scan button to start a new device scan during daylight hours. (See "Initiate a New Scan for Devices" on page 25.)

NOTE: If the old IQ Gateway has communicated to the microinverters on the same day that the new replacement IQ Gateway is installed, the new IQ Gateway will be unable to discover the microinverters. Contact Enphase at enphase.com/global/support-request for assistance in this situation.

15. Contact Enphase Support at enphase.com/global/support-request to have the new IQ Gateway added to your system and to retire the replaced IQ Gateway.

    Alternatively, you can use the Installer App. Open the app, select your system, go to the Support tab, tap Replace IQ Gateway, enter the details, and Submit.

16. Contact Enphase Support at enphase.com/global/support-request to have the new IQ Gateway added to your system and to retire the replaced IQ Gateway.

17. Ship the old IQ Gateway to Enphase using the supplied RMA shipping label.

Technical Data

Model Numbers	
IQ Gateway MeteredENV-S-EM-230	Enphase communications gateway with integrated single phase PV and consumption metering. PV production metering and optional consumption monitoring.

Accessories (order separately)	
Current transformers (CTs)CT-100-SPLIT-ROW	WxHxD: 61 mm x 51 mm x 35 mm. Lead length 4 m, extendable to 213 m depending on wire size.Order extra CTs if monitoring multiple phases.
Enphase Mobile Connect™CELLMODEM-02	Plug and play industrial grade cellular modem with five-year data plan for systems up to 60 microinverters. (Available where there is adequate mobile service in the installation area.)

Wire / Power Requirements / Specifications	
Power	230 VAC or 400Y/230 VAC, 50 Hz. Max 20 A overcurrent protection required. When hard wired outdoors, the IQ Gateway must be installed in an IP54 rated, or better, enclosure. (Use an appropriately rated enclosure if hard-wiring indoors.) The supply wiring must be 2.5 mm^2 copper rated to 75º C or better, and it must beprotected by a max 20 A breaker

Capacity	
Number of Enphase Microinverters olled	Up to 600
Number of Enphase ACBatteries polled	Up to 39

Mechanical Data	
Dimensions (WxHxD)	213 x 126 x 45 mm
Weight	0.5 kg

Environmental Data	
Ambient temperature range	-40° to 46° C when installed in an IP54-rated enclosure
Relative humidity	95%
Environmental rating	IP30. For installation indoors, or when hard wired **outdoors**, the IQ Gateway must beinstalled in an IP54 rated, or better, enclosure. Use an appropriately rated enclosure if hard-wiring **indoors**.
Altitude use	To 2000 meters
Cooling	Natural convection

Internet Connection Options	
Integrated Wi-Fi	802.11b/g/n (2.4 GHz, 5 GHz)
Ethernet	Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included). If used, mustbe fitted with included ferrite bead.
Mobile network	Optional, CELLMODEM-02 (not included)

Measurement Circuit	
Voltage	230 VAC or 400Y/230 VAC at the power input terminal block
Current	Up to 200 A via CT inputs
Measurement circuit	Per IEC/EN/CSA/UL 61010, CAT III
Metering accuracy	Production and consumption metering; Accuracy +/- 1.0%.
Compliance	
Compliance	IEC/EN 61010-1:2010, EN50065-1, EN61000-4-5, EN61000-6-1, EN61000-6-2