


TROUBLESHOOTING

a LED overview

LED	State	Description
All	Flashing red in unison	The IQ Gateway Metered is booting up
	Flashing green sequentially	Software upgrade in progress
Network communications	Solid green	Communicating with the Enphase Installer App
	Flashing green	WPS connection in progress or the IQ Gateway Metered is attempting to connect to the Enphase Installer App
	Solid red	Local network connection only
	Off	No network connection
AP mode	Solid green	AP mode enabled: IQ Gateway Metered Wi-Fi network is available
	Off	AP mode disabled: IQ Gateway Metered Wi-Fi network is unavailable
Power production	Solid green	All communicating microinverters are producing
	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 are 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 Metered is having difficulty communicating over the power lines. To troubleshoot this issue:


- Check the Enphase Installer 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.

c Power production issues

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

- 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 IQ Cable connectors. Next, check that each module is providing the required startup voltage for the microinverter. 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.
- Make sure that 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, make sure that 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 Mobile Connect modem and the Network communications LED remains off or lights solid red, see Troubleshooting in the *Mobile Connect Installation Guide*.

For any connection method, you can troubleshoot network issues with the Enphase Installer App by tapping the **Network** button, then **Diagnostic Tools**.

If you replace the broadband router, configure the IQ Gateway Metered Wi-Fi settings for the new Wireless Network Name (SSID) and password.

Wireless module details

Module type: WG7837V0 Wi-Fi & Bluetooth Module 13.4 mm×13.3 mm, LGA-100




Frequency band: 2.4 GHz and 5.0 GHz

Max power transmitted: 20 dBm













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

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 Metered; it contains no user-serviceable parts. Tampering with or opening the IQ Gateway Metered will void the warranty. Warranty void if cover removed. If the IQ Gateway Metered fails, contact Enphase Support for assistance (https://enphase.com/contact/support).
	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 energising 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 an electric shock. If you wire the IQ Gateway Metered at the sub-board, always de-energise the sub-board before beginning.
	DANGER: Risk of electric shock. Risk of fire. Only qualified personnel should troubleshoot, install, or replace the IQ Gateway Metered.
	DANGER: Risk of electric shock. Risk of fire. Do not wire unused terminals or terminal blocks on the IQ Gateway Metered.
	DANGER: Risk of electric shock. Risk of fire. Only qualified personnel should clean and service the IQ Gateway.
	WARNING: Before installing or using the IQ Gateway Metered, read all instructions and cautionary markings in the technical description and on the IQ Gateway Metered.
	WARNING: Risk of equipment damage. If installing the IQ Gateway Metered in an enclosure, choose an area for installation where the ambient temperature does not exceed 46°C.
	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: 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 Metered must be installed according to the instructions in this guide.

Note for third-party products

Any third-party manufacturer or importer product(s) used to install or commission Enphase product(s) shall comply with the applicable EU Directive(s) and requirements in the European Economic Area (EEA). It is the responsibility of the installer to confirm that all such products are labelled correctly and have the required compliant supporting documentation.

Compliance with EU Directives

This product complies with the following EU Directives and can be used in the European Union without any restrictions.

- Electro magnetic compatibility (EMC) directive 2014/30/EU
- Low Voltage Directive (LVD) 2014/35/EU
- Restriction of Hazardous Substances (RoHS) 2011/65/EU

RED Directive Compliance

Hereby, Enphase Energy Inc. declares that the radio equipment type IQ Gateway Metered follows Directive 2014/53/EU.

The full text of the EU (DoC) is available at:

<https://enphase.com/en-gb/installers/resources/documentation>

Manufacturer:

Enphase Energy Inc., 47281 Bayside Pkwy, Fremont, CA, 94538, The United States of America. PH: +1 (707) 763-4784

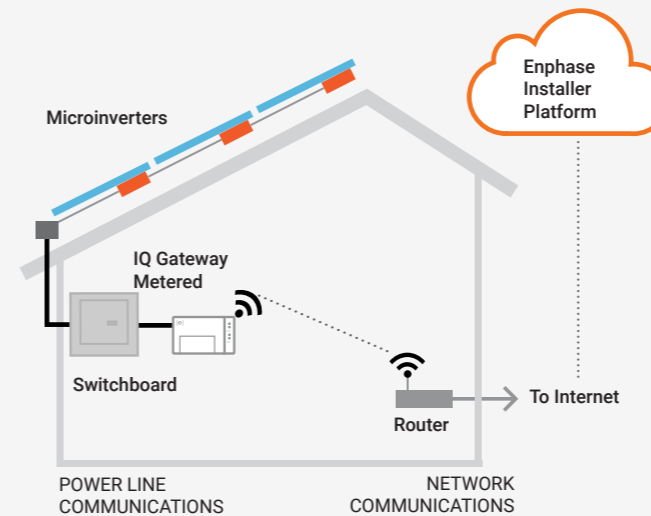
Importer:

Enphase Energy NL B.V., Het Zuiderkruis 65, 5215MV, 's-Hertogenbosch, The Netherlands, PH: +31 73 3035859

Installing the IQ Gateway Metered and EMI Line Filter Kit

To install the IQ Gateway Metered with integrated meter and the EMI Line Filter Kit, read and follow all warnings and instructions in this guide and the *IQ Gateway Metered Installation and Operation Manual* at <https://enphase.com/contact/support>. Safety warnings are listed at the end of this guide.







How it works




IQ Gateway Metered display and controls

Track system installation progress with the Enphase Installer App mobile app. The LEDs on the IQ Gateway Metered 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*.

Enphase Installer App

-  **Network communications LED**
Green when IQ Gateway Metered 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 devices are communicating with IQ Gateway Metered.
-  **Device scan button**
Press to start/stop 15-minute scan for devices over the power line.

PREPARATION

- Download the latest version of the Enphase Installer App and log in to your Enphase Installer App account. With this app, you can connect to the IQ Gateway Metered to track system installation progress. To download, go to <https://enphase.com/installers/apps> or scan the QR code at the right.
 
- Check the box for the following items:
 - IQ Gateway Metered
 - Two split-core Current Transformers (CTs) for production and consumption metering
 - DIN rail for mounting
 - *Quick Install Guide* (this document)
 - EMI Line Filter
- Check that there is space in the switchboard to install CTs. Do not install the CTs in a panel where they exceed 75% of the wiring space of any cross-sectional area within the panel.
- Install the IQ Gateway Metered in an IP54-rated, 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 the IQ Gateway Metered indoors.
- If you are installing the IQ Gateway Metered in a multi-phase application, make sure you have the following items:
 - Additional CTs (CT-100-SPLIT-ROW) for multi-phase installations. Make sure you have one CT for each phase monitored, for both production and consumption.
 - The IQ Gateway box contains a label to identify the line on which a CT is installed. Stick a small label denoting the line on a CT and wrap the corresponding bigger label on the end of the lead wire after stripping, and install the CT on the appropriate line.
 - A phase coupler. If installing on a three-phase site, install a phase coupler on the load side of the overcurrent protection device. See the Technical Brief on Phase Coupling for your region at <https://enphase.com/contact/support>. Consult Enphase Support for compatible devices.
- Decide how to connect the IQ Gateway Metered to the internet: choose to use Wi-Fi, a Mobile Connect modem, or Ethernet.
- Make sure you have the following optional items, if needed:
 - Mobile Connect modem (order CELLMODEM-02)
 - Ethernet cable [802.3, Cat5E or Cat6, unshielded twisted pair (UTP)]. Do not use shielded twisted pair (STP) cable.
- Install the PV system as directed by the installation manuals.
- If an Enphase PV system is or will be installed at the site, create a paper installation map to record device serial numbers and positions in the array. Scan this map later using the Enphase Installer App and your mobile device.
 - As you did with the microinverters (and Enphase AC batteries, if installed), peel the removable label from the bottom of the IQ Gateway Metered and affix it to the paper installation map.
 - Always keep a copy of the installation map for your records.

NOTE: If needed, you can find an installation map with any *Enphase Microinverter Quick Install Guide*.

NOTE: RCD is recommended to be installed on-site for fault protection. Follow local regulations on installing RCD on-site with IQ Gateway and IQ Series Microinverters.



INSTALLATION


1 Choose a location for the IQ Gateway Metered

- Install the IQ Gateway Metered near the switchboard and consider the length of the CT leads (4 meters) when choosing the location. If you need to extend the leads (up to 148 meters), refer to the *IQ Gateway Metered Installation and Operation Manual* at <https://enphase.com/contact/support>.
- Install the IQ Gateway Metered in a protected dry space. If outdoors, install the IQ Gateway Metered in an IP54-rated, or better, enclosure with conduit attachment. Use an appropriately rated enclosure if hard wiring the IQ Gateway Metered indoors.
NOTE: Metallic enclosures may impair Wi-Fi signal strength.
- Mount the IQ Gateway Metered horizontally using the included DIN rail.

2 Wire the IQ Gateway Metered for power and metering

For this step, refer to the [Wiring Instruction Sheet](#) for your region.

3 Energize the IQ Gateway Metered

- Close the terminal block door, and secure it with the screw.
- Turn on the circuit feeding the IQ Gateway Metered.
- All four LEDs flash red during boot-up (approximately 2 minutes). When boot-up is complete, the Device communications LED  lights solid red, indicating that devices are not yet detected.

4 Launch Enphase Installer App and start system activation

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

5 Adding devices and array to the system

This step is used to enter the 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 the bar code or QR code in the 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.
- After scanning microinverters, you can use Array Builder to assign your scanned microinverters to an array or build an array manually.

This step can also be completed post-commissioning.

6 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 **Tariff Editor** to enter the electricity import or export rate. Ensure that the device is connected to the internet to complete this step.

7 IQ Gateway connectivity

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

- Tap **IQ Gateway Connectivity** on the Enphase Installer App home page.
- 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 (the 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.
- 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.

8 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 the 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**.

9 Verify meter configuration

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

- Tap **Meter Configuration** to start configuring the 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 **Meter Configuration** to start configuring consumption and production meter.
- Subsequently, tap **Consumption 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 consumption meter** to finish the configuration of consumption meter.

10 Send summary report and complete homeowner walkthrough

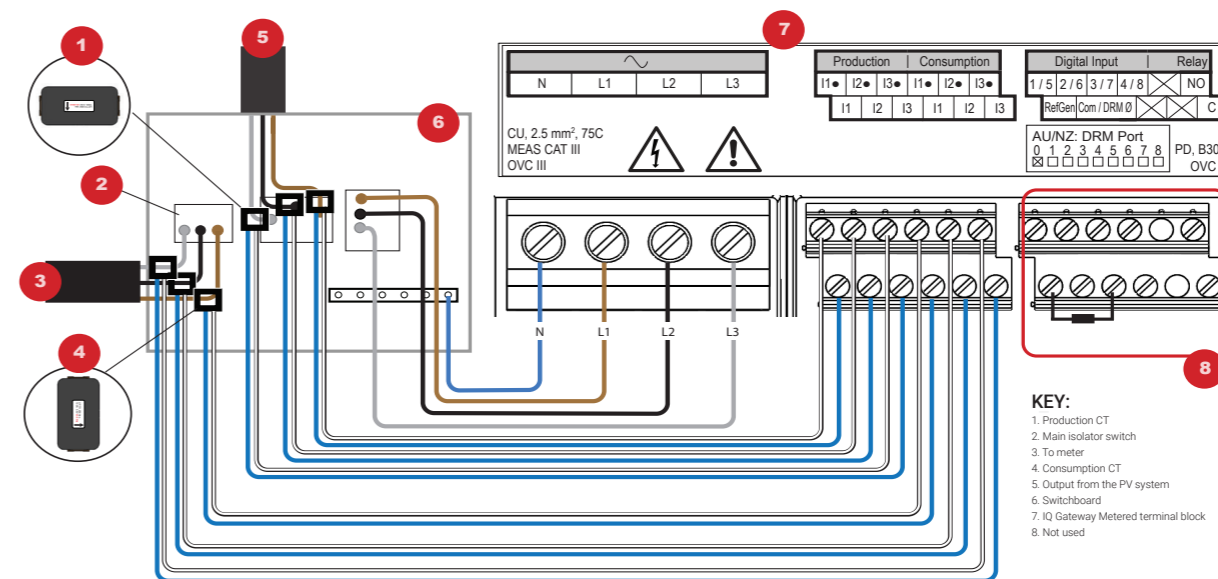
This step is used to download the summary report of all the devices installed and report to IQ Gateway. You can share this report using email, text, or airdrop. It contains details of each provisioned device and the commissioned status of the system.

- Tap **Summary** on 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.
- Tap **SHARE** on the top right 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.

WIRING INSTRUCTION SHEET FOR EUROPE

The IQ Gateway Metered uses terminal blocks for power and metering connections. Wire these terminal blocks as described in the following.

Install one split-core CT per monitored phase for production metering and one split-core CT per monitored phase for consumption metering. Use a protected route in conduit (raceway) for the CT wires to the IQ Gateway Metered. If you need to extend the leads (up to 148 meters), refer to the *IQ Gateway Metered Installation and Operation Manual* at <https://enphase.com/contact/support>.



DANGER! Risk of electric shock. Always de-energise 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 energising the sensed circuit.

NOTE: Due to variance in switchboard design and main power feed, there may not always be enough space to install CTs. Match CT and voltage sense phases. Make 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, 2, and 3. If in doubt, use a multimeter to check.

- Before running CT wires through the conduit, use coloured tape to mark each of the CTs and the free ends of its wires with a different colour. You can run multiple CT wires through a single conduit.
 - Wire the IQ Gateway Metered for power.
 - Depending on the number of phases you will wire, use a one-pole, two-pole, or three-pole (20 A maximum) circuit breaker for the supply wiring.
 - Make sure the supply wiring is 2.5 mm² copper rated at 75°C or better.
 - Locate the screw on the terminal block door, and loosen it with a screwdriver to unlock the door and flip it open.
 - Connect Line 1 to L1, Line 2 to L2, Line 3 to L3, and Neutral to N, as required.
 - Tighten all connections to 0.56 N m.
 - Install the Production CTs on phases as required:
 - Locate the arrow on the CT label.
 - To monitor production on Line 1:**
 - Connect the white wire to the "11" terminal and the blue wire to the "11" terminal.
 - Clamp the CT on active Line 1 of the solar production circuit with the arrow pointing toward the load (away from the solar array).
 - To monitor production on Line 2:**
 - Connect the white wire to the "12" terminal and the blue wire to the "12" terminal.
 - Clamp the CT on active Line 2 of the solar production circuit with the arrow pointing towards the load (away from the solar array).
 - To monitor production on Line 3:**
 - Connect the white wire to the "13" terminal and the blue wire to the "13" terminal.
 - Clamp the CT on active Line 3 of the solar production circuit with the arrow pointing towards the load (away from the solar array).
 - Tighten all connections to 0.56 N m.
 - Install the Consumption CTs in phases as required:
 - Locate the arrow on the CT label.
 - Make sure that the AC mains wire(s) are de-energised until you have secured the CT wires in the terminal blocks.
NOTE: Only run active conductors of the same phase through each CT. Each CT can monitor multiple active conductors.
 - To monitor consumption on Line 1:**
 - For the first CT, connect the white wire to "11" and the blue wire to "11".
 - Clamp the CT on the main supply Line 1 (active) conductor, the arrow must point towards the load (away from the grid).
- To monitor consumption on Line 2:**
 - For the second CT, connect the white wire to "12" and the blue wire to "12".
 - Clamp the CT on the main supply Line 2 (active) conductor, the arrow must point toward the load (away from the grid).
 - To monitor consumption on Line 3:**
 - For the third CT, connect the white wire to "13" and the blue wire to "13".
 - Clamp the CT on the main supply Line 3 (active) conductor, the arrow must point towards the load (away from the grid).
- Tighten all connections to 0.56 N m.

Installation in Europe using IQ7 Series Microinverters

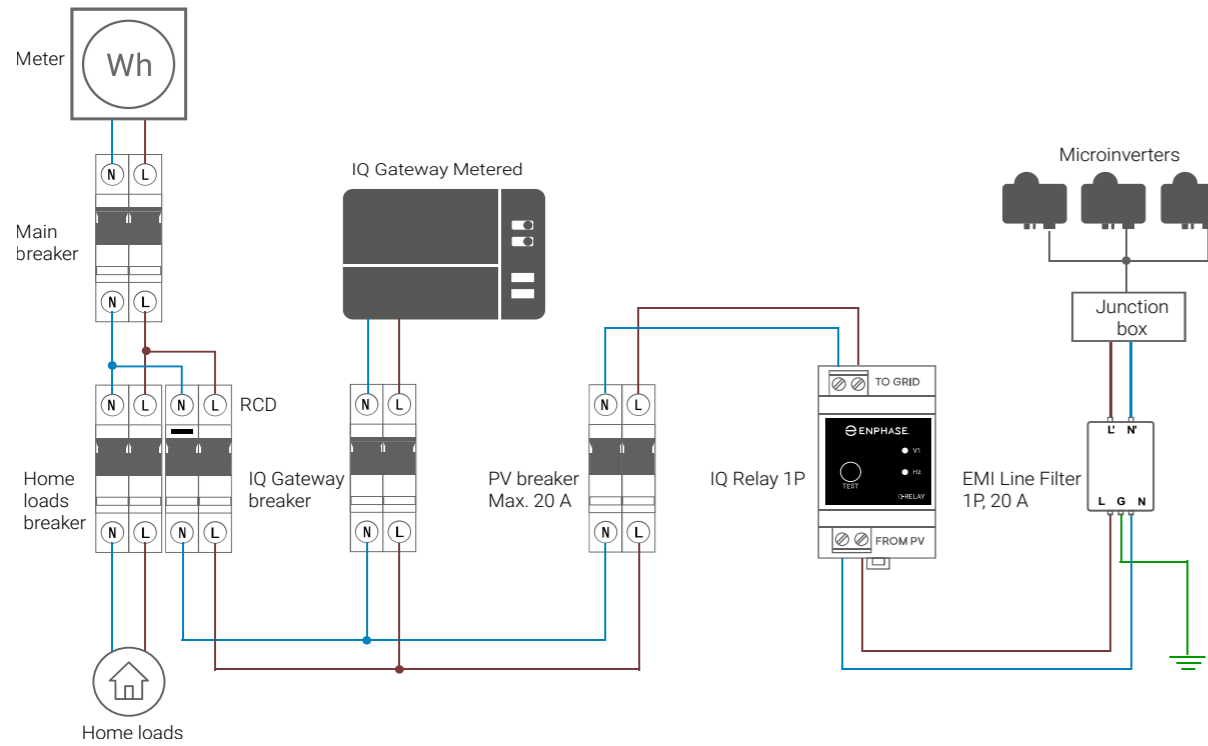
For installations in Europe using IQ7 Series Microinverters, Enphase requires the installation of an EMI Line Filter (ELF-020-1P) to prevent electromagnetic interference (EMI) noise above permissible limits from reaching home loads and the utility grid. The device is rated for 20 A, 50 Hz, and up to 250 VAC operation.

Note that the EMI Line Filter does not improve power line communication between the gateway and the microinverters. It is for EMI noise suppression. Ensure the EMI Line Filter is installed indoors or in an IP54 or higher rated enclosure.

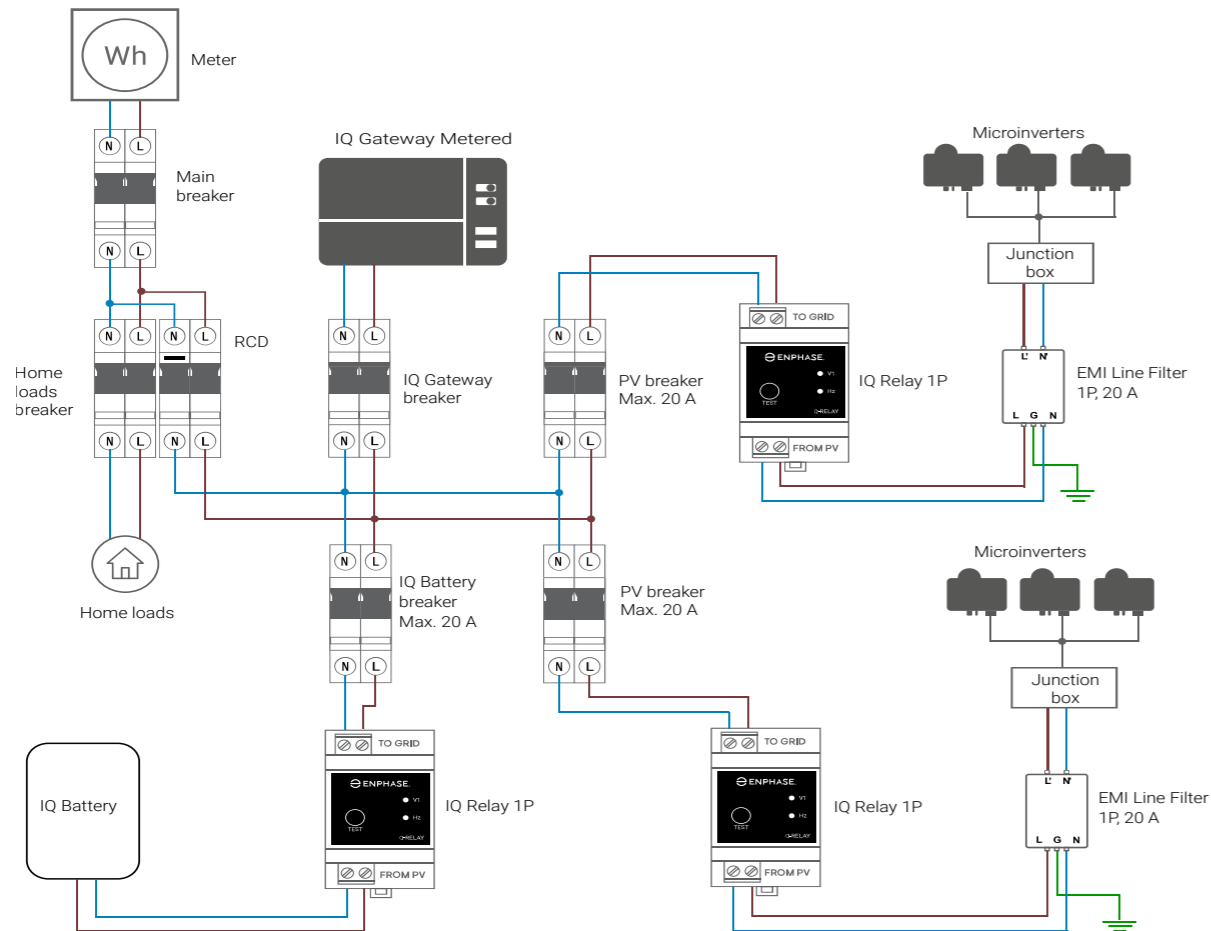
To minimize noise-coupling, do not place incoming and outgoing cables of the EMI Line Filter, next to each other. To plan the installation of the EMI Line Filter, see the following wiring diagrams.

NOTE: For three-phase systems, three EMI Line Filters must be installed on the site.

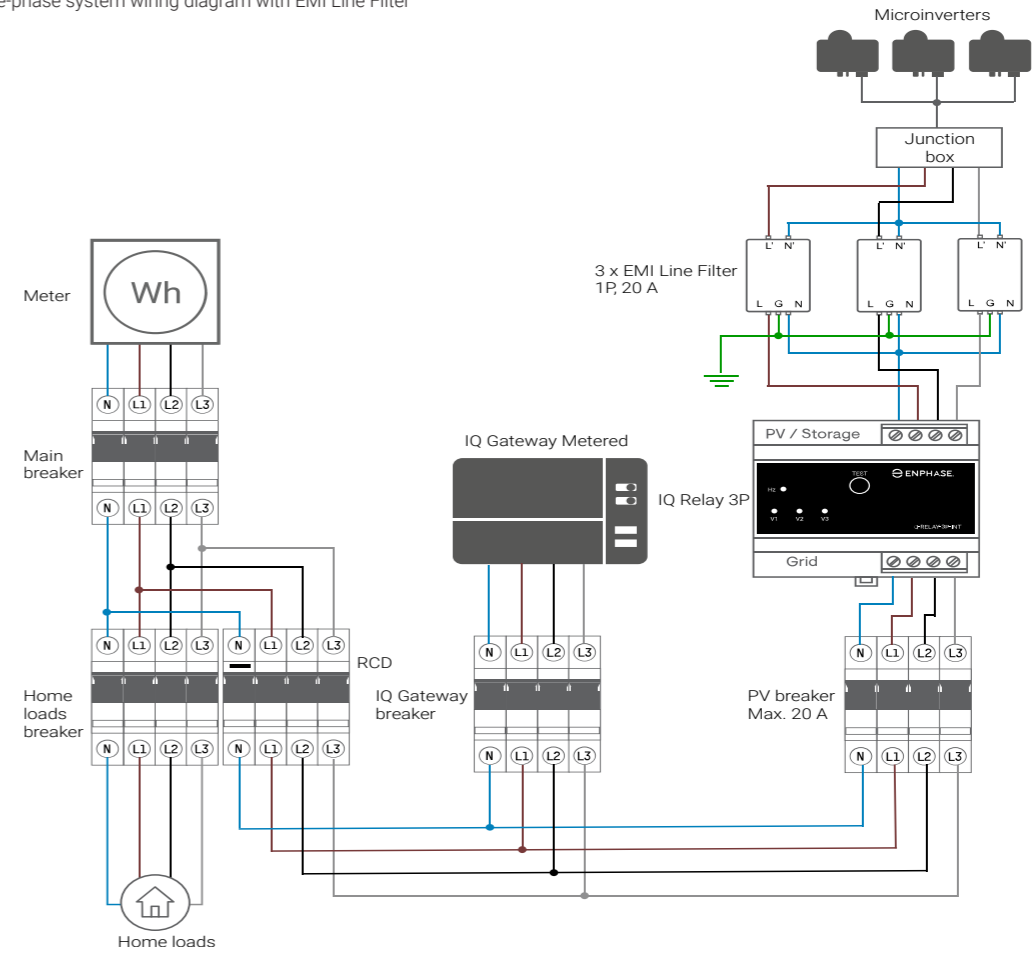
Single-phase system wiring diagram with EMI Line Filter



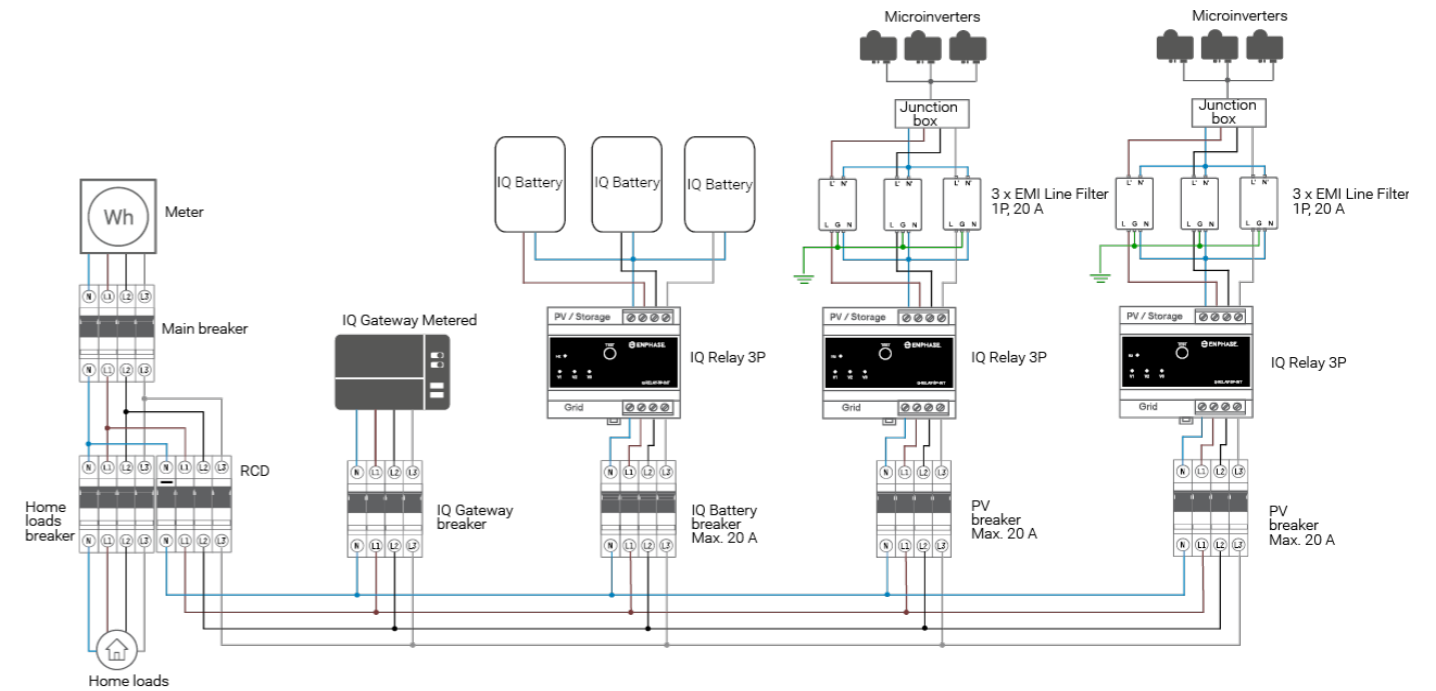
Single-phase system with multiple branches and storage wiring diagram with EMI Line Filter



Three-phase system wiring diagram with EMI Line Filter



Three-phase system with multiple branches and storage wiring diagram with EMI Line Filter



NOTE: Refer to Gateway SLDs for CT guidelines when using the IQ Gateway Metered.

Revision history

REVISION	DATE	DESCRIPTION
140-00355-02	December 2023	Updated the "Installation in Europe using IQ7 Series Microinverters" section.
140-00355-01	October 2023	Initial release.

