IQ Energy Router

Applicable regions: Germany

Contents

Corporate headquarters contact information

Enphase Energy Inc.

47281 Bayside Pkwy., Fremont, CA 94538, United States, PH: +1 (707) 763-4784 https://enphase.com/contact/support

CE

Other information

Product information is subject to change without notice. All trademarks are recognized as the property of their respective owners.

User documentation is updated frequently; check the Enphase website for the latest information. https://enphase.com/installers/resources/documentation.

To ensure optimal reliability and to meet warranty requirements, the Enphase microinverter must be installed according to the instructions in this manual. For warranty text, refer to enphase.com/installers/resources/warranty.

For information on Enphase patents, refer to https://enphase.com/patents.

Note for third-party products

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

Manufacturer

Bord Gáis Energy
1 Warrington Pl
Dublin 2, D02 HH27,
Ireland

Importer

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

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
- Radio Equipment Directive (RED): 2014/53/EU

The full text of the EU Declaration of Conformity (DoC) is available at: https://enphase.com/contact/support.

Important safety information

Product labels

The following symbols appear on the product label and are described here:

Symbol	Description
	Hot surface
	Refer to safety instructions
	Risk of electric shock
	Refer to manual
	Double insulated
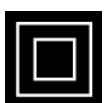
Safety and advisory symbols

To reduce the risk of electric shock and to ensure the safe installation and operation of the IQ8P Microinverters system, the following safety symbols 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 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.

WARNING: This indicates a situation where failure to follow instructions may result in burn injury.

NOTE: This indicates information that is very important for optimal system operation. Follow instructions closely.

Environmental protection

ELECTRONIC DEVICE: DO NOT THROW AWAY. Electrical products should not be disposed of as household waste. Proper disposal is required. Refer to your local codes for disposal requirements.

1. Enphase Energy System and IQ Energy Management

The Enphase Energy System combines solar, home batteries, heating, and EV charging, allowing you to generate, use, store, and sell your own energy and easily manage it all through a simple app on your smartphone.

IQ Energy Management is an AI software platform embedded in Enphase Energy System that forecasts energy production and consumption while monitoring energy rates. Using this information, every aspect of an Enphase Energy System, including third-party components, can be precisely controlled to help homeowners maximize financial savings or independence from the grid.

Forecast The IQ Energy Management learns the home's consumption patterns and upcoming weather and begins forecasting solar production, daily energy needs including energy prices.

Calculate Using intelligent forecasts and cloud-based AI technology, the IQ Energy Management system calculates the optimal use of power based on the homeowner's energy goals.

Control The IQ Energy Management system manages the Enphase Energy System by controlling when to use grid, solar, and battery energy and when to schedule energy-intensive appliances.

1.1 IQ Energy Router

The IQ Energy Router is an integral component of the Enphase home energy management solution and integrates Enphase solar as well as solar and battery storage systems with up to 2 EV chargers to maximize self-consumption and minimize costs. The IQ Energy Router is installed by using the Enphase Installer App. Homeowners can use the Enphase App to monitor energy flows and control the system.

1.2 IQ Energy Router+

The IQ Energy Router+ includes the IQ Energy Router, Energy Meter, and SG Ready Relay.

The IQ Energy Router+ integrates Enphase solar as well as solar and battery systems with heat pumps and/or up to 2 EV chargers to maximize self-consumption and minimize utility costs. The IQ Energy Router+ is installed by using the Enphase Installer App. Homeowners can use the Enphase App to monitor energy flows and control the system. The IQ Energy Router, Energy Meter, and SG Ready Relay must be connected to the home router either directly or through an Ethernet switch.

2. Using the IQ Energy Router and IQ Energy Router+

The Enphase App is a powerful and intelligent companion to the Enphase Energy System. You can monitor and control your system from anywhere and know exactly how much energy your solar system is producing and storing, as well as how much energy you are consuming. You can generate reports on energy production by day, week, month, or year, supported by clear and easy-to-read graphs and infographics.

2.1 Enphase App
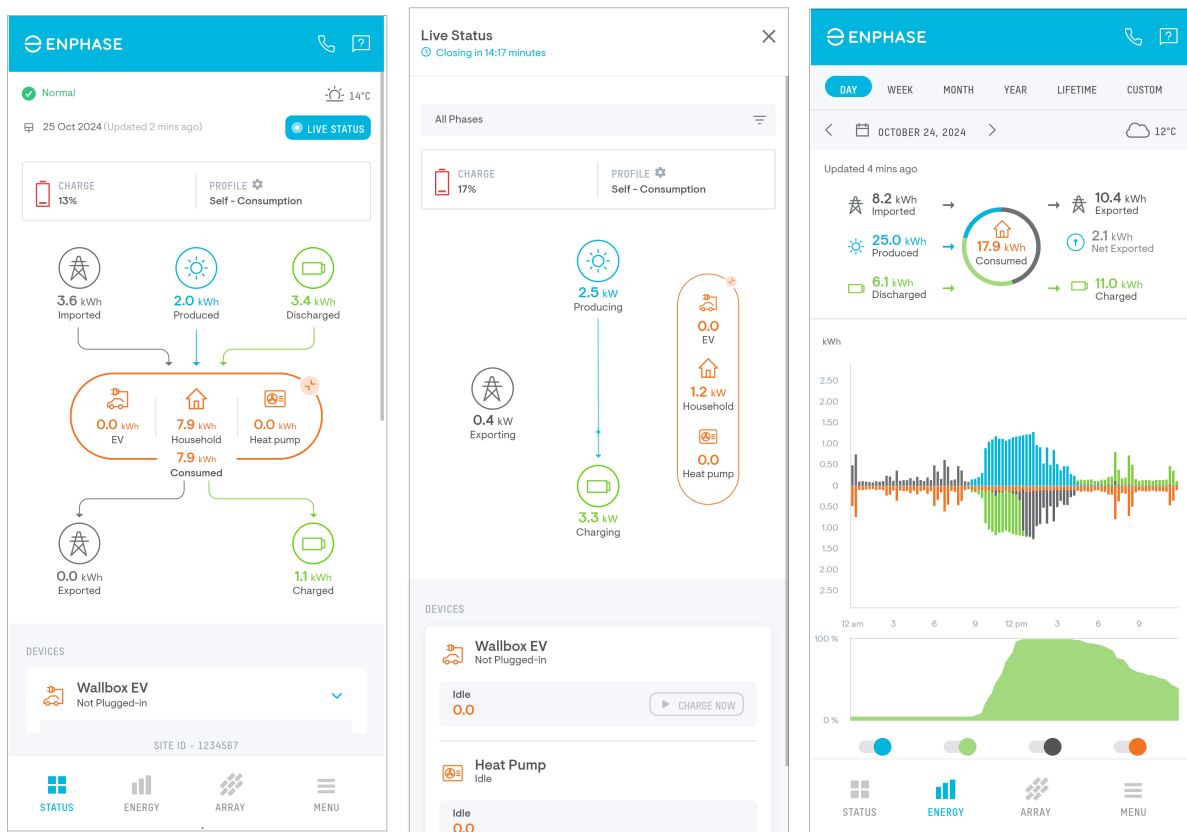
When the Enphase Energy System is equipped with the IQ Energy Router or IQ Energy Router+, you additionally get detailed information on your connected EV chargers and/or heat pump.

Once the system is installed and commissioned, the installer sends the homeowner the invitation e-mail, allowing the homeowner to create an Enphase Account and log in to the Enphase App. The app is available for both Android and iOS. For more details, refer to Enphase App.

In summary:

• See the live status of the system components and control devices.
• Visualize the daily energy flows within the home, including heat pump and EV charger.
• Set if the system should optimize for maximum savings or independence from the grid.
• Generate detailed reports on production and consumption as well as segment by device and time frame.

2.2 Controlling the connected EV chargers

When one or two compatible EV chargers are connected and added to the system, they will appear in the Enphase App and allow you to:

- Name the chargers.
- Choose whether a charger should be controlled or just monitored by the IQ Energy Router.
- Start/stop the charging process directly using the **CHARGE NOW** button.
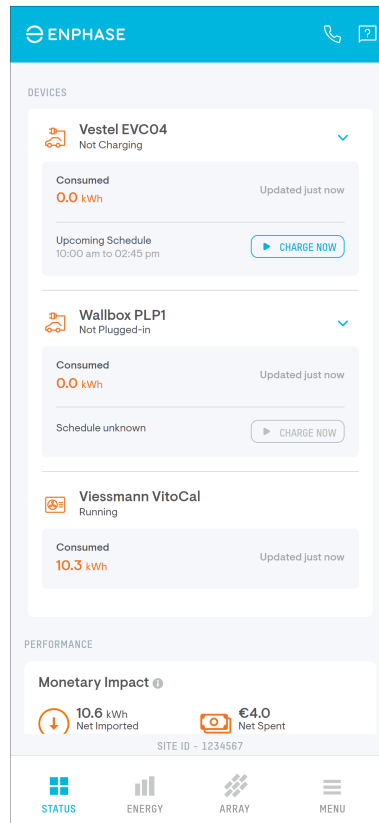
2.3 System behaviour and optimization use cases

Not all use cases may be relevant or supported in every country. You can check this by navigating to the IQ Energy Router product page for your region.

The IQ Energy Router, in combination with IQ Microinverters and optionally IQ Battery, supports the following use cases with one or two connected EV chargers.

The IQ Energy Router+ supports up to two EV chargers and connects one heat pump using the SG Ready interface. It also supports the following use cases.

2.3.1 Self-consumption optimization

Self-consumption increases the amount of solar energy used in the home instead of exporting it into the grid, which generally leads to significant cost savings.

In addition to the IQ Battery, self-consumption optimization is realized by controlling the connected heat pump and/or the EV chargers. By controlling when the devices run and how much energy they consume, their energy needs can be covered by self-generated solar energy to a greater extent.

To optimize the Enphase Energy System accordingly, set the **Profile** to **Self-Consumption.**

Navigate to **Menu > Settings > Profile** and select **Self-Consumption.**
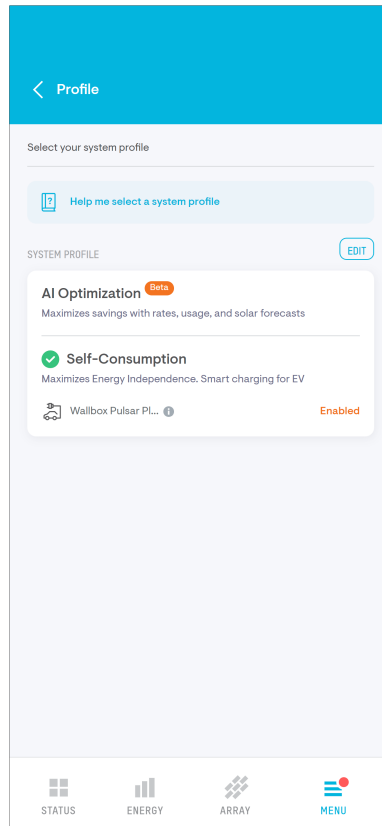
2.3.2 AI Optimization

For homeowners who are on a dynamic tariff or a Time-of-Use (ToU) energy contract where the electricity rates vary hourly or at certain times of the day, the IQ Energy Router can optimize the connected devices in such a way that high-cost periods are avoided as much as possible, and the devices are instead run when energy rates are low. This can lead to significant cost savings.

It is always possible to override the automatic optimization if, for example, you need your EV charged immediately.

In some cases where there is an overabundance of green energy in the grid, it can even be financially beneficial to switch off your IQ Microinverters. The Enphase Energy System will automatically identify these cases and take the necessary actions to prevent you from being penalized by negative energy feed-in prices. This setting depends on your regional grid regulation and profile.

> **NOTE:** You must be on a dynamic tariff energy contract based on the pricing on the very commonly used European Power Exchange (EPEX SPOT) to benefit from dynamic tariff optimization. Contact your utility to check if you are already on a compatible energy contract or if it would be beneficial for you to move to one.

Follow the steps to optimize the Enphase Energy System. You must configure it to use the dynamic pricing from **EPEX SPOT** and set the **Profile** to **AI Optimization.**

1. Go to **Menu > Settings > Electricity > Rate.**
2. Tap **Add Electricity Import Rate.**

Then, follow the steps to confirm the use of dynamic tariffs:
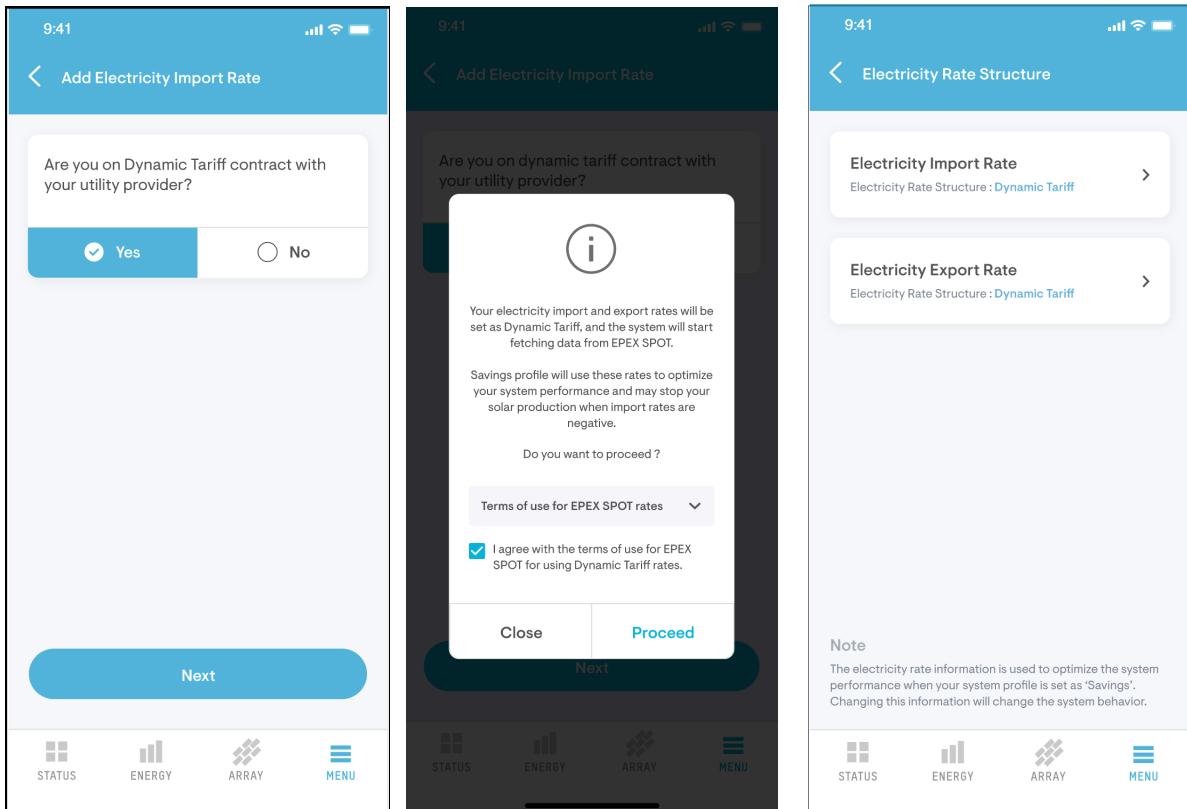
Navigate to **Menu > Settings > Profile** and select **AI Optimization.**

3. Preparation, installation, and commissioning

3.1 Pre-installation

It is important that all preconditions are met before installing the IQ Energy Router or IQ Energy Router+. Use this list to check if everything is ready to set up the system.

3.1.1 Enphase Installer App
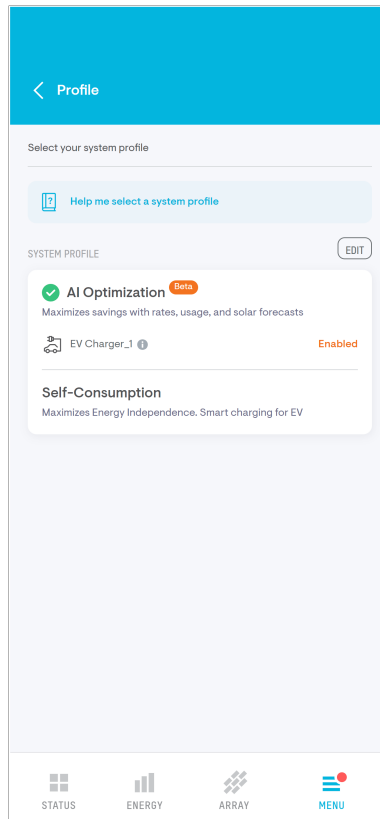
The Enphase Installer App is required to commission the IQ Energy Router. This app is used to commission all Enphase devices and offers a fully guided experience. The Enphase Installer App is available for Android and iOS and can be downloaded from the respective app stores.

- Enphase Installer APP - Apps on Google Play
- Enphase Installer APP on the App Store (apple.com)

The tutorials for installation, setup, and usage of the Enphase Installer App are available here: Getting Started – Commission | Enphase.

3.1.2 IQ Energy Router certification course – Enphase University

It is mandatory to complete the IQ Energy Router certification course available at Enphase University.

This course will provide installers with all the information needed to confidently install and commission the IQ Energy Router and IQ Energy Router+.

If the installer account used for the Enphase Installer App has not completed the certification course, you cannot commission the IQ Energy Router.

3.1.3 General remarks

- The homeowner must have a stable internet connection.
- Bring a laptop or handheld device that can access the local customer network.

3.1.4 Heat pump-specific remarks

- The installation of the heat pump system must be completed before the configuration of the IQ Energy Router and must support the SG Ready interface.
- Install the Energy Meter and SG Ready Relay delivered with the IQ Energy Router+ before commencing with commissioning.
- The Energy Meter and SG Ready Relay must be connected through a LAN cable to the same local network as the IQ Energy Router.
- Ensure that no other TQ Systems or Gude products are already installed on-site and connected to the local network, as this is not permitted when using the IQ Energy Router.
- Additional components (for example, cables and breakers) for the SG Ready Relay and Energy Meter are not included in the IQ Energy Router+ package. Review the respective manuals for which additional components are required: https://enphase.com/installers/resources/documentation/home-energy-management?search_api_language=All.
- In general, all SG Ready capable heat pumps are supported by the IQ Energy Router+ and the home energy management system from Enphase. For many leading heat pump brands, Enphase provides quick configuration guides to assist in the installation and configuration of the system. Refer to the Documentation center to see if your heat pump brand is already covered.

3.1.5 EV charger-specific remarks

- The installed EV charger must be on the list of supported EV chargers.
  Always check the firmware version of the EV charger in the respective settings. Update the firmware of the EV charger to the supported version according to the above-mentioned documentation.

- The EV charger must be installed and have the default configuration as defined by the manufacturer.
- The EV charger must be connected to the same local network as the IQ Energy Router.
- Ensure that the main fuse of the site and the circuit breakers are rated to the level required by the household loads and the EV chargers being installed. Also, consider the charging power of the IQ Battery (if installed) and its ability to charge from the grid (if allowed by regulation).

> ⊘ **NOTE:** Some EV charger manufacturers offer dynamic load management/balancing solutions that can protect the main fuse by reducing the charging power if all installed devices are used simultaneously. Refer to the current Enphase configuration documents for the supported manufacturers to assess the compatibility with the home energy management system.

3.2 Installing the IQ Energy Router

Completing the IQ Energy Router certification course available at Enphase University is mandatory. Refer to the IQ Energy Router certification course – Enphase University for further details.

To install the IQ Energy Router, read and follow all warnings and instructions in the quick installation guide provided with the IQ Energy Router. The installation must be carried out by qualified personnel.

3.3 Installing the IQ Energy Router+

Completing the IQ Energy Router certification course available at Enphase University is mandatory. Refer to the IQ Energy Router certification course – Enphase University for further details.

To install the IQ Energy Router+, read and follow all warnings and instructions in the quick installation guide provided with the IQ Energy Router+. The installation must be carried out by qualified personnel. Refer to the Documentation center.

3.4 LED status

This section describes the LED behaviour of IQ Energy Router, Energy Meter, and SG Ready Relay Gude Expert Net Control 2302.

3.4.1 IQ Energy Router LED behaviour

The three LEDs on the IQ Energy Router indicate the state the device is currently in and can be helpful when troubleshooting issues.

Table 1: IQ Energy Router LED behaviour

Status		
Colour	**State**	**Description**
All LEDs Off	Off	The IQ Energy Router is either not powered or completely without function.
Green	Solid On	The IQ Energy Router is operating normally.

Status		
Colour	**State**	**Description**
Green	Flashing	The IQ Energy Router is booting up.
Red	Flashing	The IQ Energy Router is experiencing issues and is attempting to re-establish connectivity with both the internet and LAN. If the issue persists, contact [Enphase Support](#).

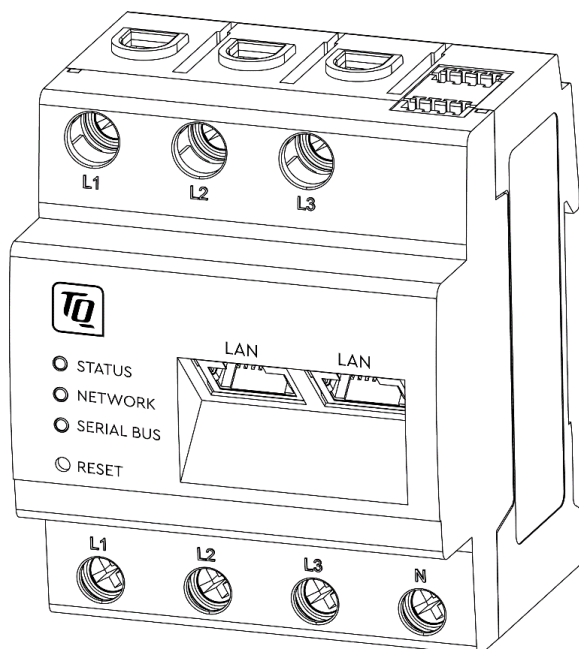### 3.4.2 Energy Meter TQ EM420 LED behaviour

Table 2: Energy Meter TQ EM420 LED behaviour

Colour	State	Description
STATUS (top LED)		
—	Off	The Energy Meter is not being supplied with power. Ensure at least the line conductor L1 and the neutral conductor N are connected to the Energy Meter
Green	Flashing slowly	Device is starting
Green	Solid On	Device ready-to-operate
Green	Flashing rapidly	Firmware update in progress
Orange	Solid On (<10 s)	Device is starting
Orange	Solid On (>10 s)	Error
Orange	Flashes 2 x	Confirmation that the network settings have been reset using the **Reset** button

Colour	State	Description
STATUS (top LED)		
Red	Solid On	Error
Red	Flashing	Error

NETWORK (middle LED)		
Colour	State	Description
-	Off	No connection
Green	Flashing	Activity
Green	Solid on	Link

SERIAL BUS (bottom LED)		
Colour	Status	Description
—	—	The serial bus LED is not used

The documentation is packaged together with the device and can also be accessed in the download section: Documentation center.

3.4.3 SG Ready Relay Gude Expert Net Control 2302 LED behaviour

Table 3: SG Ready Relay Gude Expert Net Control 2302 LED behaviour

Status (right LED)		
Colour	**Status**	**Description**
Off	Off	The device is not powered or is completely non-functional. Check if the breaker is on and the device is wired correctly.
Green	Solid On	The device is working and is connected to Ethernet, and the TCP/IP settings are allocated.
Orange	Solid On	The device is connected to Ethernet and is waiting to be assigned an IP address by the router (local DHCP server).
Red	Solid On	The device is not connected to Ethernet. Check the Ethernet connection.
—	Flashing	The device is in bootloader mode (maintenance). Power-cycle the device, and if it persists, contact Enphase Support.

The documentation is packaged together with the device and can also be accessed in the download section: Documentation center.

3.5 Configuration of the EV charger (if applicable)

1. Identify which brand and type of EV charger is installed.
2. Go to the Documentation center, find the applicable quick configuration guide, and follow the steps described therein.
3. Only the EV chargers listed in the Documentation center are supported.

3.6 Configuration of the heat pump (if applicable)

1. Identify which brand and type of heat pump is installed.
2. Go to the Documentation center, find the applicable quick configuration guide, and follow the steps described therein.
3. If no quick configuration guide is available for the specific brand or model of heat pump, it can still be optimized by the IQ Energy Router+ as long as the heat pump supports the SG Ready standard.

3.7 Commissioning the IQ Energy Router

This section is intended for Enphase-certified installers who commission the Enphase Energy System with IQ Energy Router.

Ensure that you have the latest Enphase Installer App installed on your smartphone or tablet. Both Android and iOS are supported.

Follow the steps below to establish successful communication between the IQ Energy Router, EV charger, heat pumps, and IQ Gateway.

Pre-commissioning process

EV Chargers, heat pumps, and the IQ Energy Management hardware components must be installed and configured before pairing and commissioning the IQ Energy Router.

Refer to this regional web page to learn more about installing and configuring the supported EV Chargers and heat pump models. The IQ Energy Router can only pair with a third-party EV charger and heat pump after these devices are configured.

[Germany](#)

Commissioning process

1. Device and configuration:

   a. You can add the IQ Energy Router count in the **Add Devices** screen. Each site can add a maximum of one IQ Energy Router.

   b. Add devices like a Heat pump and an EV Charger to the IQ Energy Router.

   c. Scan/Enter the IQ Energy Router serial number manually (mentioned as Hub ID at the bottom). Ensure you are connected to the internet to complete this step.
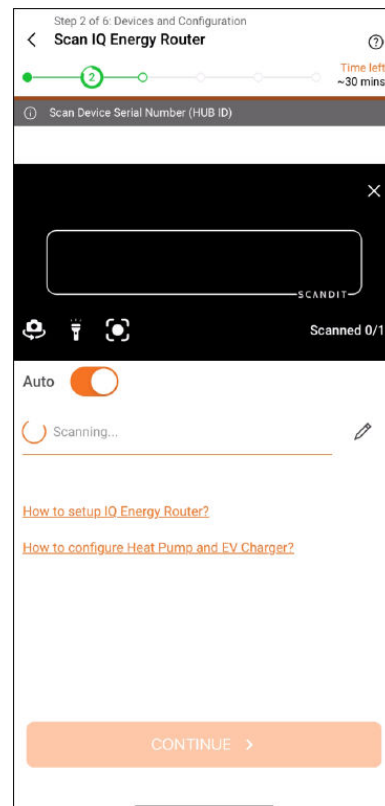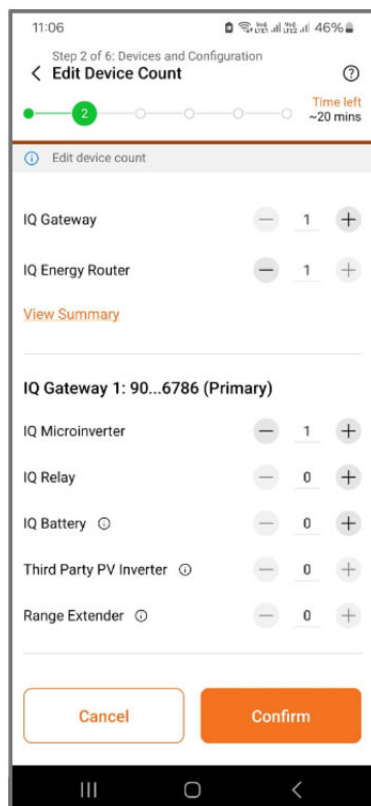

2. IQ Energy Router connectivity:

   a. Set up the IQ Energy Router and connect it to the internet using the Ethernet cable.

   b. Complete the commissioning of the Enphase Energy System. In the **Summary Report,** tap **Next Step: Connect to IQ Energy Router.**

   c. Configure the IQ Energy Router peripherals, such as the heat pump and EV Charger, at the site.
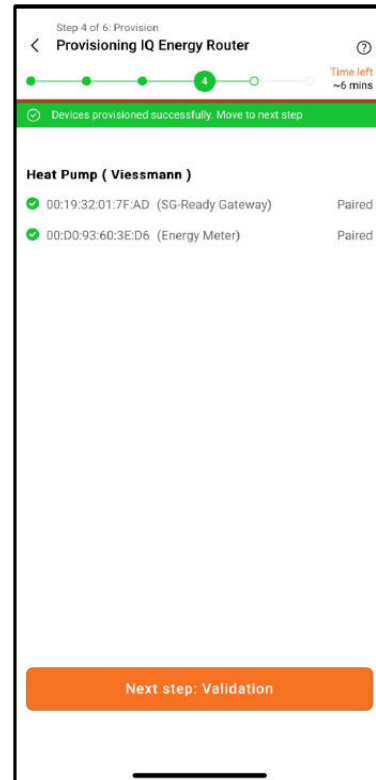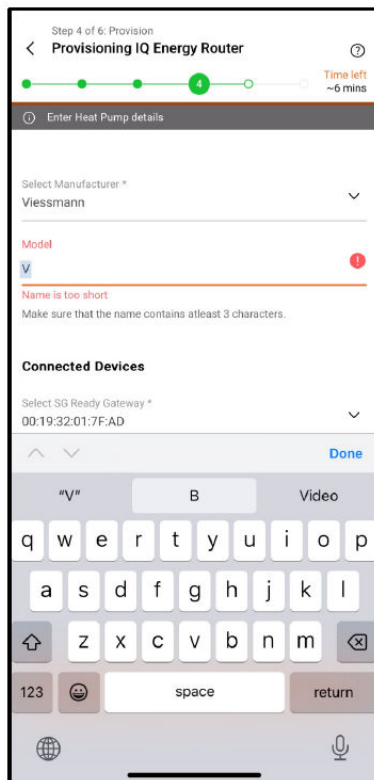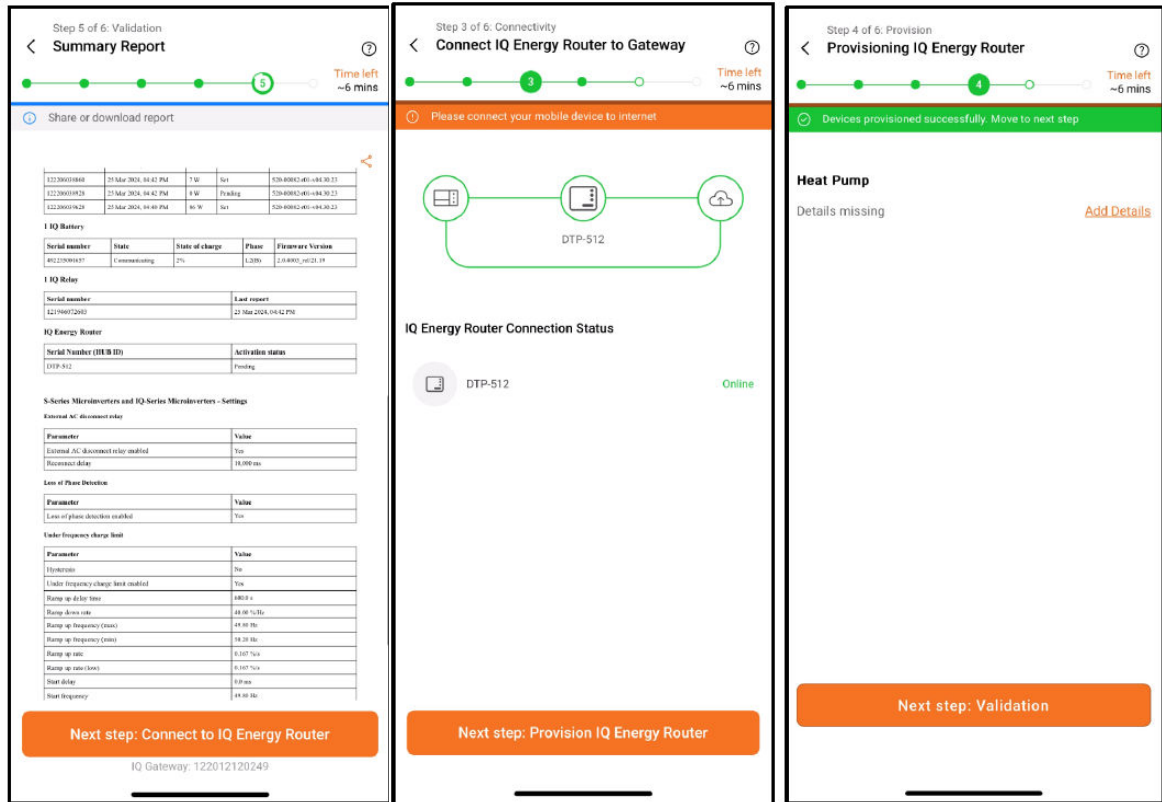
3. Provision IQ Energy Router:

  a. Tap on **Next Step: Provision IQ Energy Router** to complete the provisioning of the
      IQ Energy Router.
  b. Enter the details of the peripherals if not entered earlier.
4. Tap **Next Step: Validation** to complete the authorization and activation of the peripherals.
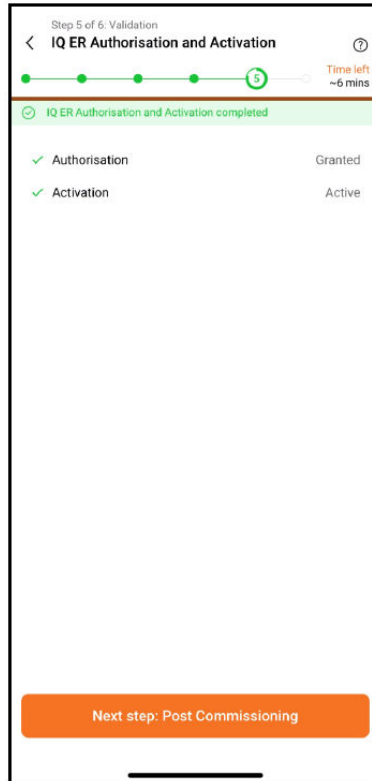
3.8 Granting monitoring access to the homeowner

Once the IQ Energy Router has been successfully commissioned, the homeowner will receive an
e-mail with credentials to access the Enphase App.
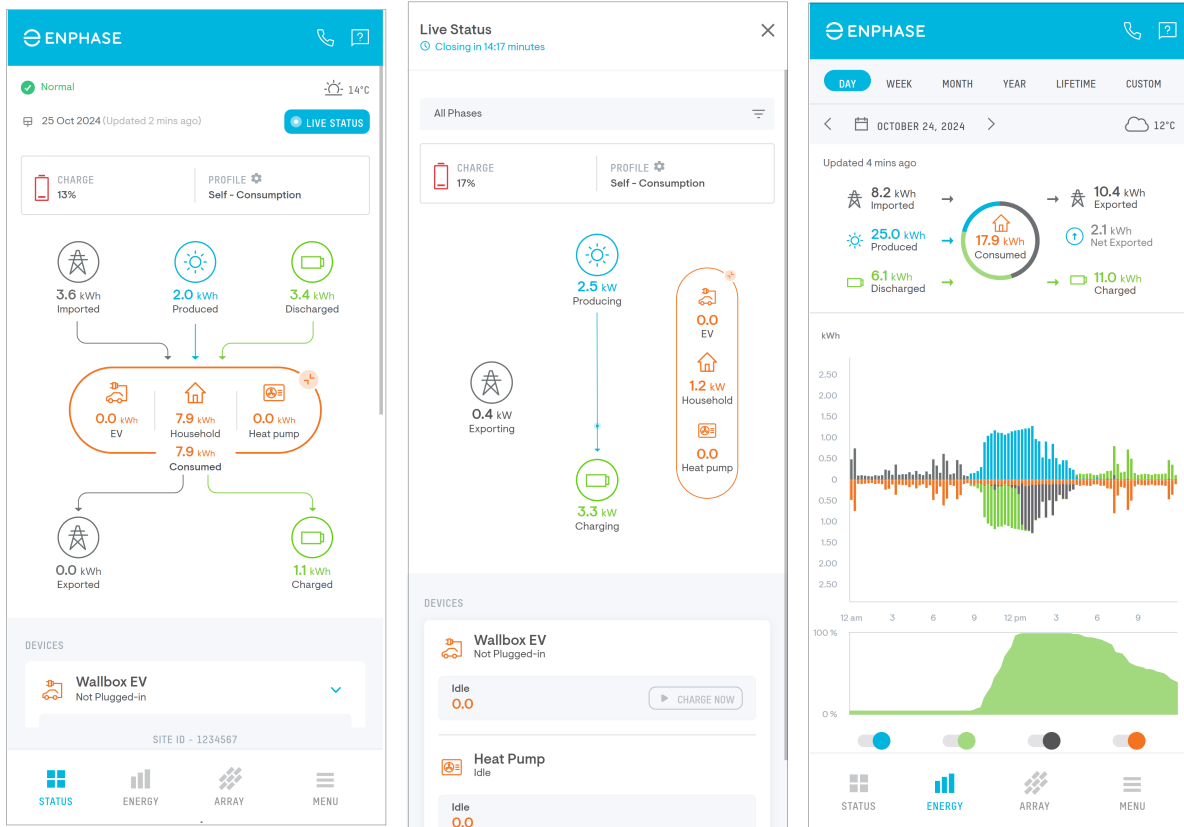
4. Troubleshooting, support, and FAQs

4.1 Troubleshooting

Important considerations when facing connectivity issues:

4.1.1 Local network and internet access

The IQ Energy Router must have access to the internet and must be on the same local network as the IQ Gateway and the devices it is to control, like EV chargers and the Energy Meter, as well as SG Ready Relay for heat pumps.

4.1.2 Firewall settings for restrictive company networks and special cases

Firewalls must be configured in such a way that the IQ Energy Router can connect to the internet and the Enphase servers. For normal home use, no special configuration is required.

The following two outbound ports must be open for the IQ Energy Router to work:

- TCP 8883 for MQTT connection
- TCP 12940 for VPN

4.1.3 Network communications LED

If the LED on the IQ Energy Router is flashing red, the device is experiencing issues and is attempting to re-establish connectivity with both the internet and the local network. If this state persists, reboot the IQ Energy Router by disconnecting it from the power supply and reconnecting it a few seconds after all LEDs have turned off.

If the problem persists, check that the Ethernet cable is functional and the internet can be accessed. If the cable and internet connection are working, contact Enphase Support for further assistance.

4.1.4 EV Charger or heat pump (Energy Meter/SG Ready Relay) not detected

Review the corresponding quick configuration guide to ensure all devices are configured correctly.

4.2 Replacing Energy Meter, SG Ready Relay, and IQ Energy Router

To obtain repair or replacement, credit or refund (if applicable) under the limited warranty, follow the policies and procedures described in the Return Goods Authorization Process: https://enphase.com/installers/resources/warranty.

The RMA (Return Merchandise Authorization) process needs to be initiated by the installer. If the Energy Meter and/or the SG Ready Relay needs to be uninstalled, it must be done by authorized personnel.

For details on how to uninstall these devices, refer to the Documentation center.

The IQ Energy Router is a plug-and-play device that can also be uninstalled and reinstalled by the homeowner.

If the Energy Meter, the SG Ready relay, and/or the IQ Energy Router have been replaced, they must be re-commissioned. This can be done remotely through Enphase Support.

4.3 FAQs

Frequently asked questions for the IQ Energy Router and the Enphase Energy System are available in the Documentation center.

4.4 Warranty

The components of the Enphase Home Energy Management have a limited warranty of 5 years, starting from the date of activation. The following products are available:

IQ Energy Router:

- IQ Energy Router (HEMS-GW-01)

The IQ Energy Router+:

- IQ Energy Router (HEMS-GW-01)
- Energy Meter (HEMS-EM-01)

- SG Ready Relay (HEMS-SG-01)

For warranty limitations and exclusions, refer to the warranty documentation for details.

5. Decommissioning

To decommission the IQ Energy Router from the Enphase Energy System, contact Enphase Support.

In the EU, electronic devices are considered e-waste and should not be disposed of in the regular trash. Instead, they should be recycled or disposed of properly. The Waste Electrical and Electronic Equipment (WEEE) Directive requires the separate collection and proper treatment of WEEE and sets targets for their collection as well as for their recovery and recycling.

6. Revision history

Revision	Date	Description
IOM-00075-2.0	November 2024	Updated the section "Commissioning the IQ Energy Router".
IOM-00075-1.0	March 2024	Initial release.