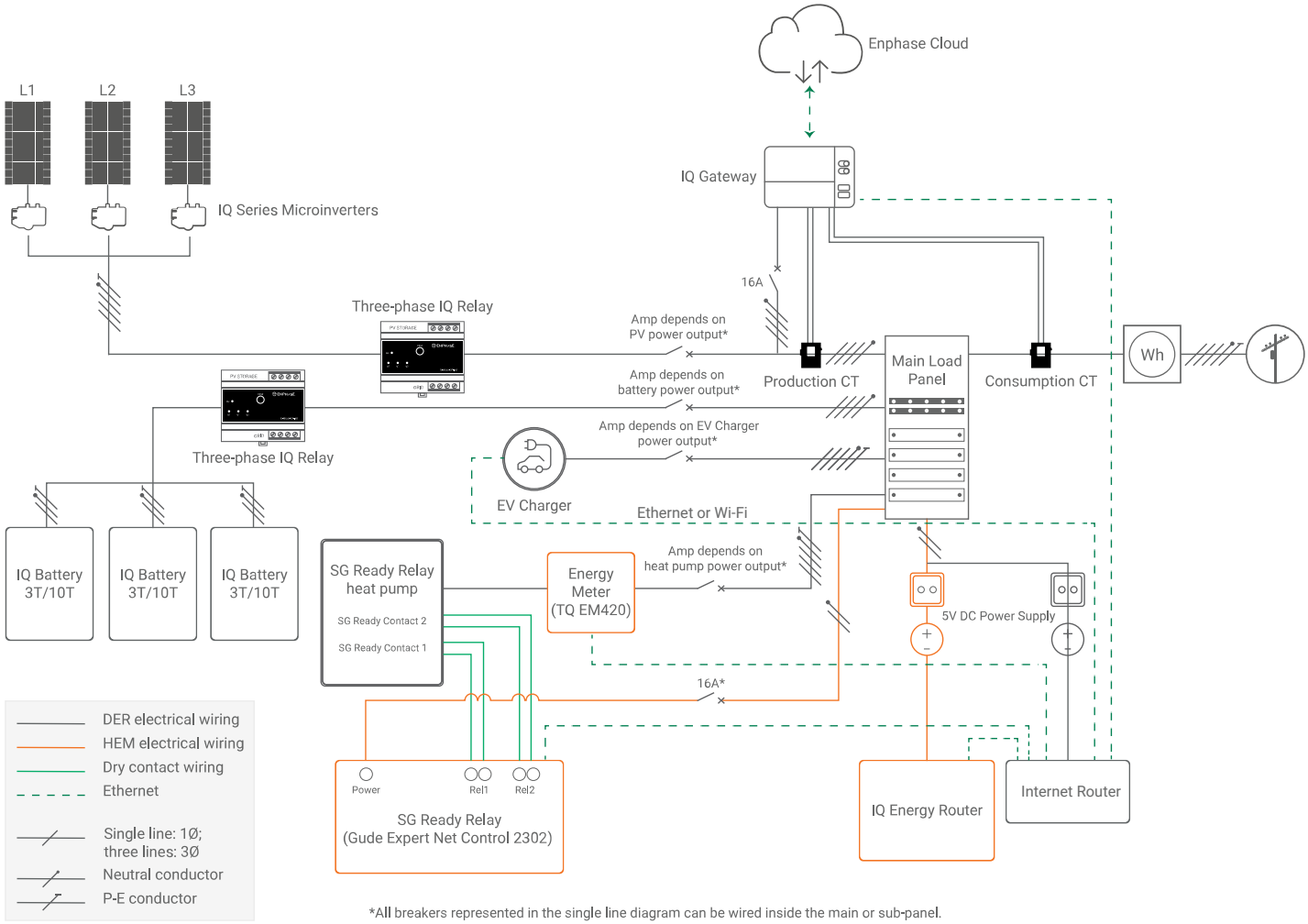
QUICK INSTALL GUIDE - EN (**Model**: HEMS-HP-01)

Installing **Enphase IQ Energy Router+**

The **IQ Energy Router+** includes the Enphase IQ Energy Router, Energy Meter, and SG Ready Relay. The IQ Energy Router integrates Enphase solar and storage battery systems with heat pumps and EV chargers and other devices to maximize self-consumption and minimize costs for the overall site. Installers should use the Enphase Installer App and the Enphase Installer Portal to install and maintain the system. System owners can use the Enphase App to monitor energy and control the system. The IQ Energy Router, Energy Meter, and SG Ready Relay are connected to the home router either directly or via an Ethernet switch.

To install the IQ Energy Router, Energy Meter, and SG Ready Relay, read and follow all warnings and instructions in this guide. Safety warnings are listed at the end of this guide. If you do not fully understand any of the concepts, terminology, or hazards outlined in these instructions, refer installation to a qualified electrician or installer. All installations must comply with national and local electrical codes. Professional installation is recommended.



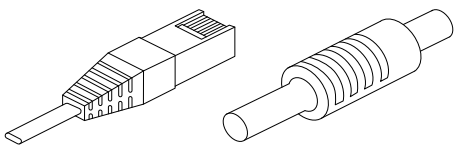
*All breakers represented in the single line diagram can be wired inside the main or sub-panel.

SINGLE LINE DIAGRAM

What's in the box

The box contains the IQ Energy Router, CAT 6 Ethernet cable with RJ45 jack at either end, DC power supply cable, TQ EM420 Energy Meter, and SG Ready Relay.

IQ Energy Router



CAT 6 Ethernet cable **DC power supply cable**

140-00286-02

What's in the box (Cont.)

The energy meter, TQ EM420 Energy Manager, communicates wirelessly to the IQ Energy Router and measures the energy consumption of the heat pump. For more detailed specifications, click Energy Meter or scan the following QR code:

The SG Ready Relay, the Gude Expert Net Control 2302, communicates wirelessly to the IQ Energy Router and is needed to control the heat pump through the SG Ready signal. The signal is sent through two dry contact relays providing the ability to configure four different signal states.

For more detailed specifications, click SG Ready Relay or scan the following QR code:

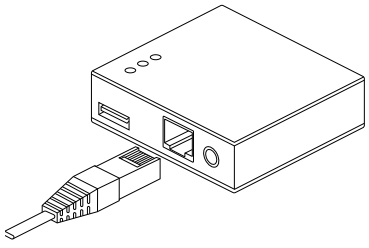
IQ Energy Router Specifications

Enviromental specification, standards, and certification	
Temperature range	10°C to 40°C
Directive	RoHS, WEEE, REACH
Flammability	UL94
EMC	EN 55032: 2015
Electrical safety	EN IEC 62368-1:2020+A11: 2020
Compliance	CE
Max. radiated power	<10 dBm
Frequency	2405 – 2480 MHz
Electrical specification	
Input voltage	5 VDC
Input current	1 A
Consumption	5 W
Mechanical specification	
Weight	114 g
Height	27.3 mm
Width	96.1 mm
Length	96.6 mm
DC power cable	USB A to 5 V DC jack cable (2.5 mm x 5.5 mm barrel connector)
EU power supply - Voltage	100 V– 240 V@ 50 Hz – 60 Hz
EU power supply - Current	0.2 A
Ethernet port	RJ-45
Colour	White
Packaging specification	
Weight	270 g
Height	72 mm
Width	115 mm
Length	117 mm
Included in box	EU power supply, USB A to jack cable (2.5 mm x 5.5 mm DC plug), CAT 6 Ethernet cable with RJ45 jack at either end), TQ EM420 Energy Meter, and SG Ready Relay

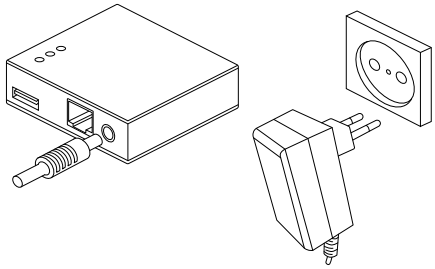
1 Setting up the IQ Energy Router

A) **Location**: Set up the IQ Energy Router close to the internet router or an Ethernet switch connected to the internet router.

B) **Network connectivity**: Plug one end of the CAT 6 Ethernet cable to the IQ Energy Router and the other end into the Ethernet port of your internet router or Ethernet switch.



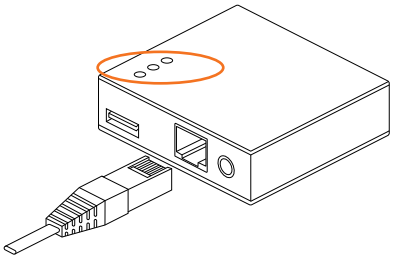
C) **Powering the IQ Energy Router**: Connect the IQ Energy Router to an electrical outlet using the provided DC power cable.



D) **Monitoring IQ Energy Router**: Wait for the IQ Energy Router to boot up. This can take few minutes. A solid green light indicates that the IQ Energy Router is ready.

Monitor the LED pattern of the IQ Energy Router:

- Flashing green: The IQ Energy Router is booting up
- Solid green: Normal operation
- Rapid flashing red: The IQ Energy Router is experiencing issues and is attempting to re-establish connectivity with both internet and LAN. If the issue persists, contact customer support at https://enphase.com/contact/support.



2 Setting up the Energy Meter

The following hardware (not included in the box) is required for installation:

- **Miniature circuit breaker**: Rating depends on power rating of the heat pump. Refer to heat pump datasheet before selecting circuit breaker.
- **Electrical cabling**: Cable size depends on power rating of the heat pump (cables at least 10 mm² in cross section). Refer to heat pump datasheet before selecting appropriate cabling. Length may vary depending on site configuration but not less than 1 m.
- **Ethernet cable** to connect to home router or connected switch: IEEE 802.3 CAT 6, unshielded twisted pair (UTP).

Installation steps

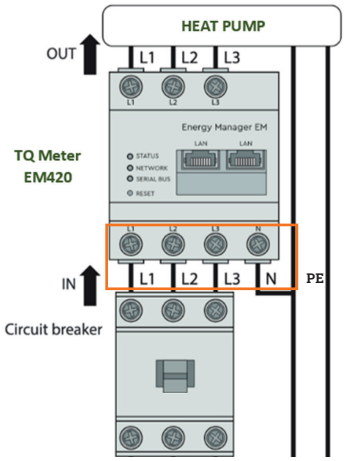
A) **Location**: The Energy Meter can be installed in the main panel if space is not a constraint or can be installed in a separate sub-panel closer to the location of the heat pump.

✓ **NOTE:** Ethernet cable from home router or Ethernet switch should reach the location of the Energy Meter to ensure network connectivity.

B) **Mounting**: The Energy Meter is DIN rail mountable.

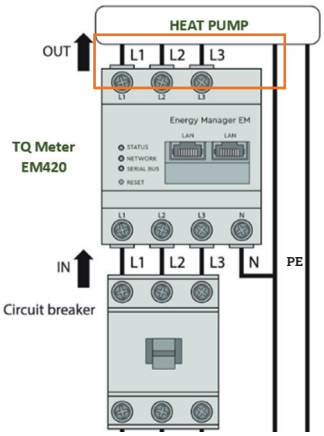
C) **Electrical connections**:

1. Single-phase connection: Wire the supply wire coming from the output of the circuit breaker to the input L1 of the Energy Meter and input N of the neutral wire.
2. Three-phase connection: Wire the supply wires coming from the output of the circuit breaker to the inputs L1, L2, and L3 of the Energy Meter and input N of the neutral wire as shown inthe following figure:

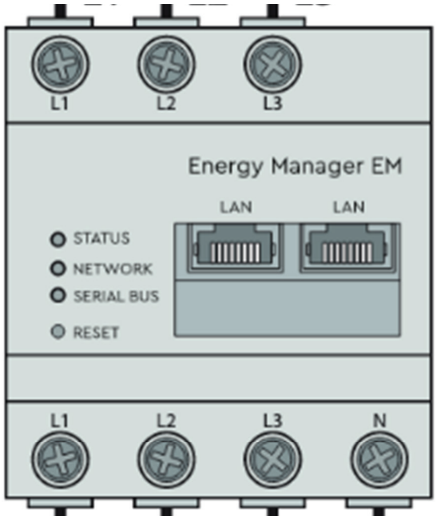


⚠ **WARNING:** Make sure the circuit is not energized while working on the electrical connections. Make sure upstream breakers are open and zero voltage is verified using a multimeter.

1. Single-phase connection: Wire the supply wire L1 and N coming from the output of the Energy Meter to the supply terminal L1 and N of the heat pump.
2. Three-phase connection: Wire the supply wires L1, L2, L3, and N coming from the output of the Energy Meter to the supply terminal L1, L2, L3, and N of the heat pump as shown in the following figure:



D) **Network connection**: Plug the CAT6 Ethernet cable coming from the home router or Ethernet switch to one of the LAN ports of the Energy Meter as shown in the following figure:



For Energy Meter technical data sheet, directives, and certifications, click EM420 or scan the following QR code:

3 Setting up the SG Ready Relay

The following hardware (not included in the box) is required for installation:

- Miniature circuit breaker (MCB), B16 rated 16A can be used to protect the SG Ready Relay
- Electrical cabling to power the relay (two-wire L/N 1.5 mm²)
- Electrical cabling to connect the relay dry contacts with the SG Ready Heat pump interface contacts (4 wires each with 0.75 mm² diameter)
- Ethernet cable to connect to home router or Ethernet switch: IEEE 802.3 CAT 6, twisted pair (UTP)

Installation steps

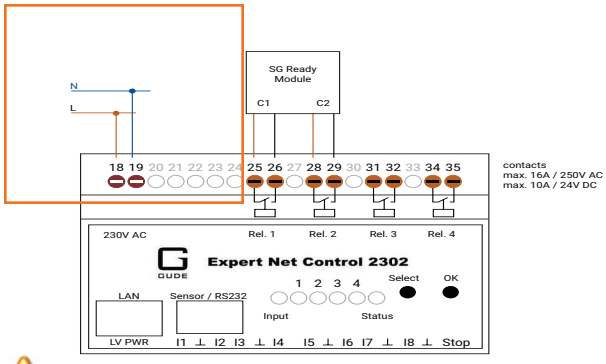
A) **Location**: The relay can be installed in the main panel if space is not a constraint or can be installed in a separate sub-panel closer to the location of the heat pump

✓ NOTE: **Ethernet cable from home router or Ethernet switch should be accessible to the location of install of the relay to ensure network connectivity.**

B) **Mounting**: The relay is DIN rail mountable.

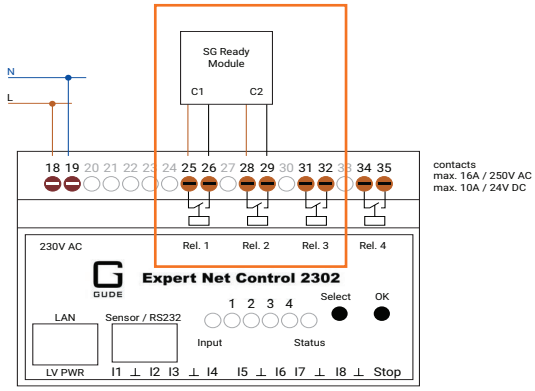
C) **Electrical connections**:

1. Wire the supply wires coming from the output of the circuit breaker to input of the relay as shown in the following figure:

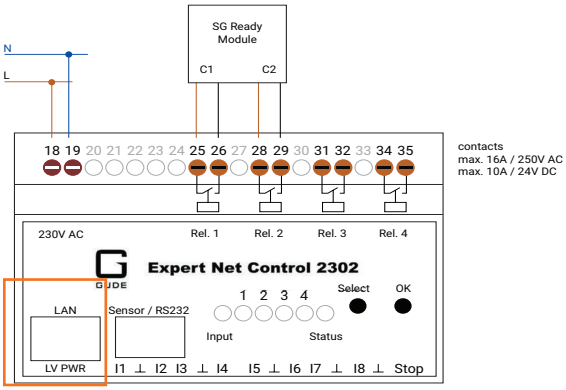


WARNING: Make sure the circuit is not energized while working on the electrical connections. Make sure all upstream breakers are open and low or zero voltage is verified using a multimeter.

2. Wire the cabling from the dry contact relays (Rel 1 and Rel 2) to the SG Ready contacts on the heat pump as shown in the following figure.



C) **Network connection**: Plug the Ethernet cable coming from the home router or Ethernet switch into the LAN port of the SG Ready Relay as shown in the following figure:



For SG Ready Relay technical data sheet, directives, and certifications, click SG Ready Relay or scan the following QR code:

4 Configure EV charger and/or heat pump

Before you can pair the EV charger and/or heat pump to the IQ Energy Router, configuration of the supported EV charger for OCPP and/or heat pump for SG Ready Relay is needed. For more detailed instructions, scan the following QR code or click documentation.

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 Energy Router, SG Ready Relay, and Energy Meter. They contain no user-serviceable parts. Tampering with or dismantling the IQ Energy Router, SG Ready Relay, and Energy Meter will void the warranty. If the equipment fails, contact Enphase Customer Support (https://enphase.com/contact/support) for assistance or replacement equipment.
⚠	DANGER: Risk of electric shock. Do not use IQ Energy Router, SG Ready Relay, and Energy Meter 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. Risk of fire. Only qualified personnel should troubleshoot, install, or add parts to the IQ Energy Router.
⚠	DANGER: Risk of electric shock. All sources to equipment being serviced must be disconnected external to the device. In particular, the storage system may energize conductors, so storage circuits must ALWAYS be isolated via circuit breaker or disconnected before working on any portion of the system.
⚠	DANGER: Risk of electric shock. Be aware that installation of this equipment includes risk of electric shock. If you wire the SG Ready Relay and Energy Meter at the sub-panel, always de-energise the sub-panel before beginning.
⚠	DANGER: Risk of electric shock. Risk of fire. Only use electrical system components approved for wet locations.
⚠	DANGER: Risk of electric shock. Risk of fire. Ensure that all wiring is correct and that none of the wires are pinched or damaged.
⚠	DANGER: Risk of electric shock. Risk of fire. Do not work alone. Someone should be in the range of your voice or close enough to come to your aid when you work with or near electrical equipment. Remove rings, bracelets, necklaces, watches etc. when working with batteries, photovoltaic modules, or other electrical equipment.
⚠	WARNING: Before installing or using the IQ Energy Router, SG Ready Relay, and Energy Meter read all instructions and cautionary markings in the technical description and on the components.
✓	NOTE: Using unapproved attachments or accessories could result in damage or injury.
✓	NOTE: Perform all electrical installations in accordance with all national and local electrical codes.

Environmental Protection

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

Compliance with EU Directives

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

- Radio Equipment Directive (RED): 2014/53/EU
- Restriction of Hazardous Substances (RoHS): 2011/65/EU

The full text of the EU declaration of conformity is available at the following internet address:

https://link.enphase.com/en-us/hem-documentation

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Revision history

REVISION	DATE	DESCRIPTION
140-00286-02	May 2023	Initial release
Previous releases		