ENPHASE.

Installing **Enphase 400 A Consumption CTs**

Use this document with the *Enphase IQ Gateway Metered Quick Install Guide* to install Enphase consumption monitoring current transformers (CTs). The Enphase IQ Gateway Metered ships with two CTs for monitoring single-phase production and consumption. The CTs that ship with the box are designed to fit most residential installations. In certain cases, such as small commercial sites, a larger CT may be needed to fit larger cross-section conductors. This 400 A Consumption CT has been designed for such applications. Read and follow all warnings and instructions in this guide and the quick install guide included with your IQ Gateway.

SAFETY

SAFETY AND ADVISORY SYMBOLS

⚠	**DANGER:** This indicates a hazardous situation, which, if not avoided, will result in death or serious injury.
✓	**NOTE:** This indicates information particularly important for optimal system operation. Follow instructions carefully.

SAFETY INSTRUCTIONS

⚠	**DANGER:** To reduce the risk of electric shock, always open or disconnect the circuit from the power distribution system (or service) of the building before installing or servicing the current transformers.
⚠	**DANGER:** Risk of electrocution! Do not install CTs when current flows in the sensed circuit. Always install CT wires in the terminal blocks before energizing the sensed circuit.
⚠	**DANGER:** If equipment is used in a manner not specified by Enphase Energy, the protection provided by the equipment may be impaired.
⚠	**DANGER:** Risk of electric shock. Be aware that installation of this equipment includes the risk of electric shock. If you wire the IQ Gateway to the main electrical panel before beginning wiring. If the subpanel cannot be de-energized, a competent electrician may safely install the CTs as directed, making sure to connect the leads and then place the CTs around each wire and latch.
⚠	**DANGER:** Risk of electric shock. Risk of fire. Only competent personnel should troubleshoot, install, or replace the CTs.
✓	**NOTE:** Because of variances in electrical panel design and main power supply, there may not always be enough space to install CTs.
✓	**NOTE:** Do not install the CTs in a electrical panel where they exceed 75% of the wiring space of any cross-sectional area within the equipment.
✓	**NOTE:** Perform all electrical installations in accordance with all national and local electrical standards and best practice.
✓	**NOTE:** Restrict installation of current transformers in an area where they would block ventilation openings, or in the area of breaker arc venting.
✓	**NOTE:** Secure current transformer and route conductors so that they do not directly contact live terminals or bus.
✓	**NOTE:** When wiring the IQ Gateway Metered for production and consumption metering, install the current transformers (CTs) precisely as described for your application.
✓	**NOTE:** When installing CTs, it is important to match CT and sense voltage phases. Be sure to consistently identify the three AC conductors at three points: the main electrical panel supply, the IQ Gateway, and the PV production circuit breaker. Wire colors may not always consistently identify L1, L2, and L3. If in doubt, use a multimeter to check.
✓	**NOTE:** Only run active conductors through the CT. The CT can monitor multiple active conductors. You may run more than one wire through the CT if all wires are in the same phase and they fit the opening in the CT.
✓	**NOTE:** For indoor use only.
✓	**NOTE:** Not suitable for connecting to safety extra low-voltage circuits (SELV) or equivalent.

SPECIFICATIONS

SPECIFICATION	CT-400-SPLIT-INT
CT type	Split-core
CT accuracy (error rate) when used with the IQ Gateway	<2%
Maximum primary supported current	400 A
Turns ratio	2500:1
Dimensions (mm)	93 × 111 × 25
Aperture (mm)	50 × 50
Supported conductor size	Up to a maximum size of 150 mm^2 conductors
Primary voltage	250 VAC maximum
Frequency	50–60 Hz
Operating temperature	-40°C to 70°C
Humidity	95%
Compliance	IEC 61869-1
Maximum operating altitude	2600 m
Pollution degree	2

INSTALLATION

For more information, see the reverse of this document. Refer also to the *IQ Gateway Metered Quick Install Guide*.

Preparation

A) If not already done, de-energize the main electrical panel and the PV system.

Install the Consumption CTs

A) Refer to the diagram on the reverse of this document for wiring.

B) Install the Consumption CTs on active phases as required:

- Locate the arrow on the CT label.
- Make sure that the AC mains wire(s) are de-energized until you have secured the CT wires in the terminal blocks.
- **To monitor consumption on Line 1:**
  - Connect the white wire to the white “C1” and the blue wire to the blue “C1” terminal.
  - Clamp the CT on the main supply Line 1. When the Consumption CT is on the Line 1 conductor, the arrow must point toward the load (away from the grid).
- **To monitor consumption on Line 2:**
  - Connect the white wire to the white “C2” terminal and the blue wire to the blue “C2” terminal.
  - Clamp the CT on the main supply Line 2. When the Consumption CT is on the Line 2 conductor, the arrow must point toward the load (away from the grid).
- **To monitor consumption on Line 3:**
  - Connect the white wire to the white “C3” terminal and the blue wire to the blue “C3” terminal.
  - Clamp the CT on the main supply Line 3. When the Consumption CT is on the Line 3 conductor, the arrow must point toward the load (away from the grid).
- **Tighten all connections to 5 in-lb (0.6 N m).**

C) Close and secure the terminal block door of the Gateway.

D) Turn on the PV system.

INSTALLATION TIPS

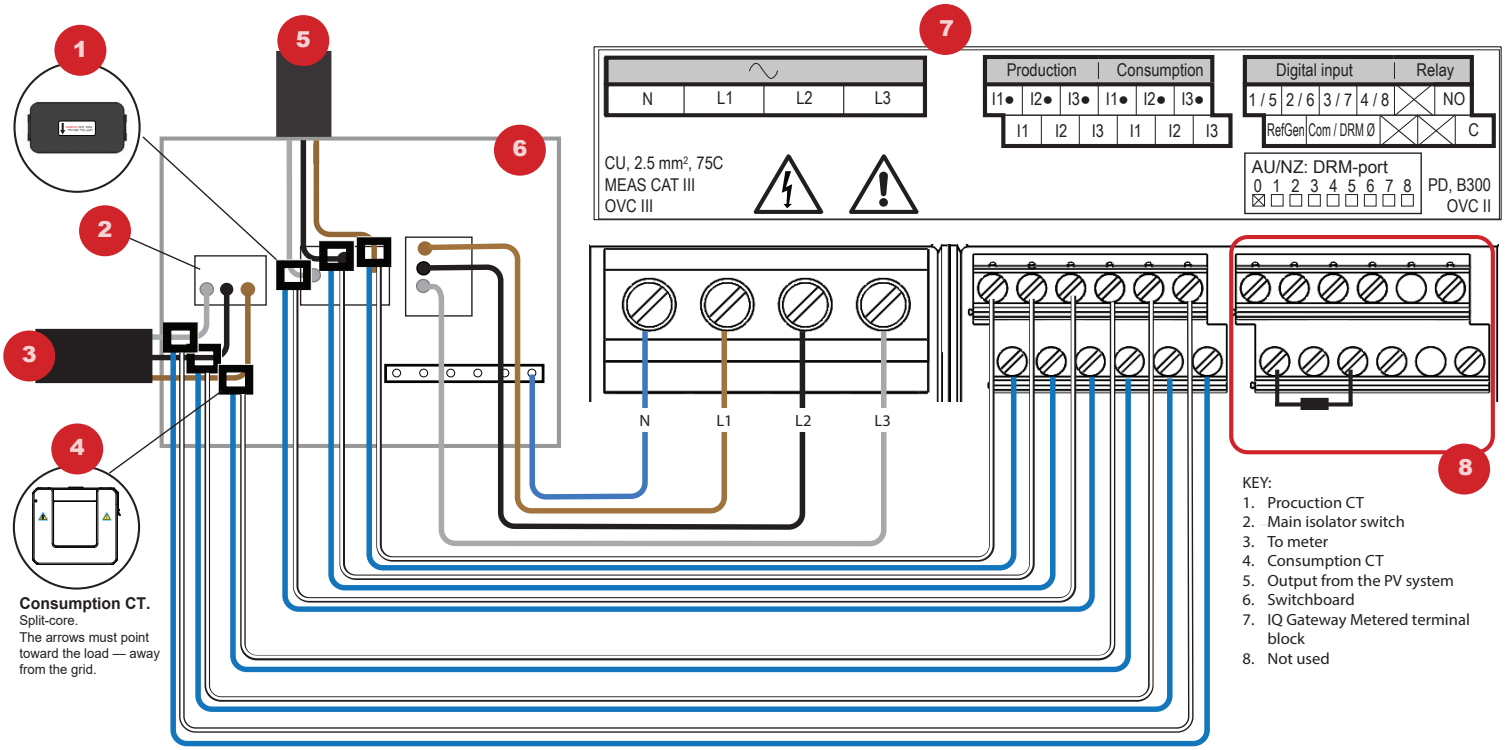
Installing multiple conductors in a single CT

If you need to install multiple conductors in a single CT, you must ensure that the conductors terminate on the same line conductor, so the voltage at the terminals of the two conductors will be 0 V between them.

There are some challenges to this approach:

- It is easy to make a wiring error.
- The conductors must fit within the CT.
- All of the conductors on Line 1 must be bundled with the loads on Line 1 CT.
- All of the conductors on Line 2 must be bundled with the loads on Line 2 CT.
- All of the conductors on Line 3 must be bundled with the loads on Line 3 CT.
- You may need to extend some of the circuits.

It is often possible to run all of the conductors in a service panel through a single set of Consumption CTs.



Manufacturer's information

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Revision history

REVISION	DATE	DESCRIPTION
140-00340-01	July 2024	Initial release.

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