

Enphase Energy Systems with IQ Battery 5P Troubleshooting Guide

Australia/New Zealand



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Introduction



Introduction and installer certification

This guide is intended for Enphase storage products only. This includes IQ Batteries, IQ System Controllers, and meters.

Installers should never combine an Enphase IQ Battery 5P with non-Enphase AC coupled Batteries. To learn more about IQ Battery 5P compatibility, see the [compatibility tech brief](#).

Installers must submit a design review for AC Battery and M-series sites to the email address below:
drs_au@enphaseenergy.com

Certification

Installers must acquire an Enphase Energy System (EES) Installer certification to commission or service an IQ Battery 5P.

A separate certification is available for IQ8 Microinverters. For more information, visit [Enphase University](#).

Getting certified

To learn more about the certification process, see the [Training and certification page](#) on the Enphase website.

Product identification, anatomy, LEDs, and buttons



Identify the IQ System Controller 3

The IQ System Controller 3 connects the home to grid power, IQ Battery 5P storage, and PV.

The IQ System Controller 3 provides microgrid interconnection device (MID) functionality by automatically transitioning from grid power to backup power in the event of a grid failure.

It consolidates all equipment and communication devices into a single, consistent, pre-wired solution.

The IQ System Controller 3 supports IQ8, IQ7, and S Series Microinverters.

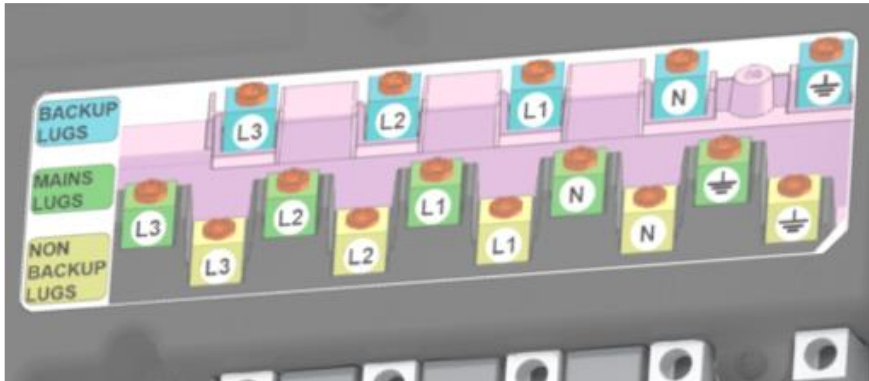
To learn more about the IQ System Controller 3, see the [quick install guide](#).



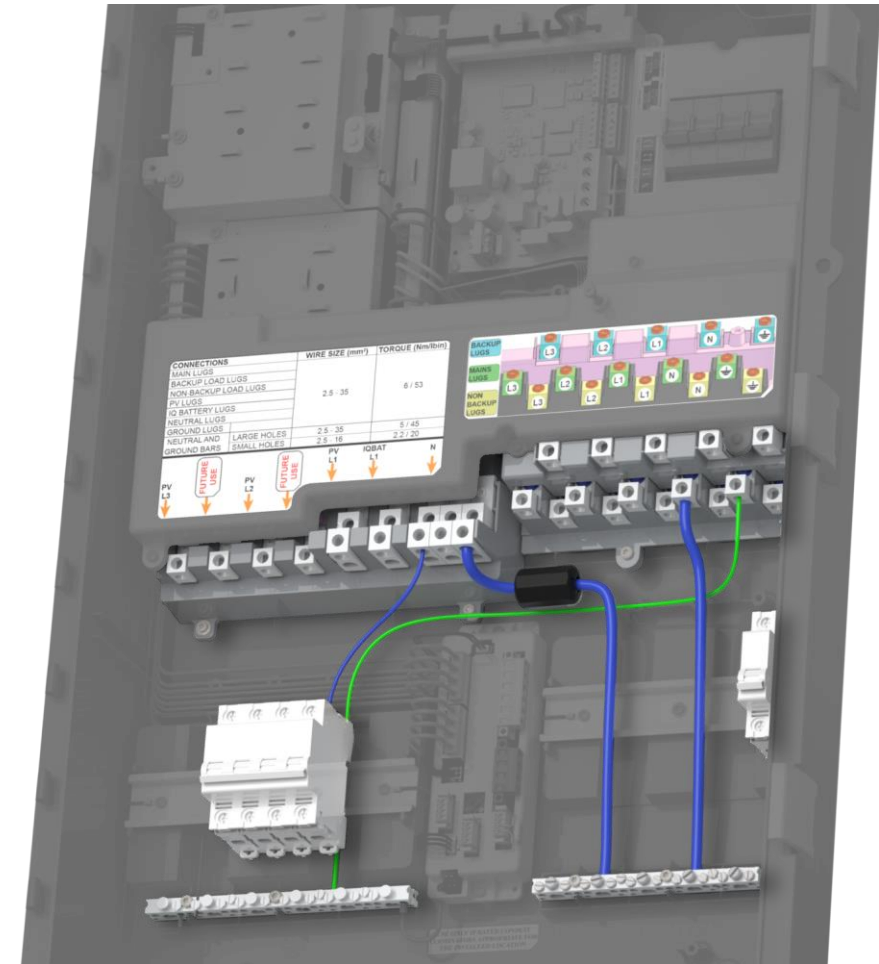
Anatomy of the IQ System Controller 3

The image on the right shows the key components the IQ System Controller 3, which comes pre-wired.

The main lugs, backup lugs, and non backup lugs are the same color. Refer to the interior sticker to verify configuration.



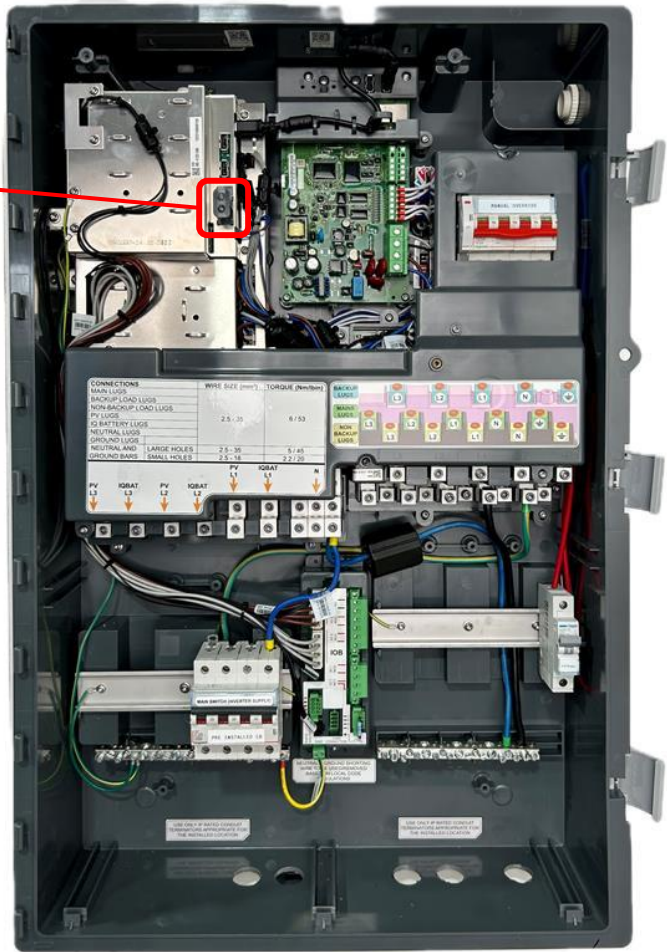
To learn more about the anatomy of the IQ System Controller 3, see the [quick install guide](#).



IQ System Controller 3 LEDs

Refer to the LED functions indicated on the interior of the IQ System Controller.

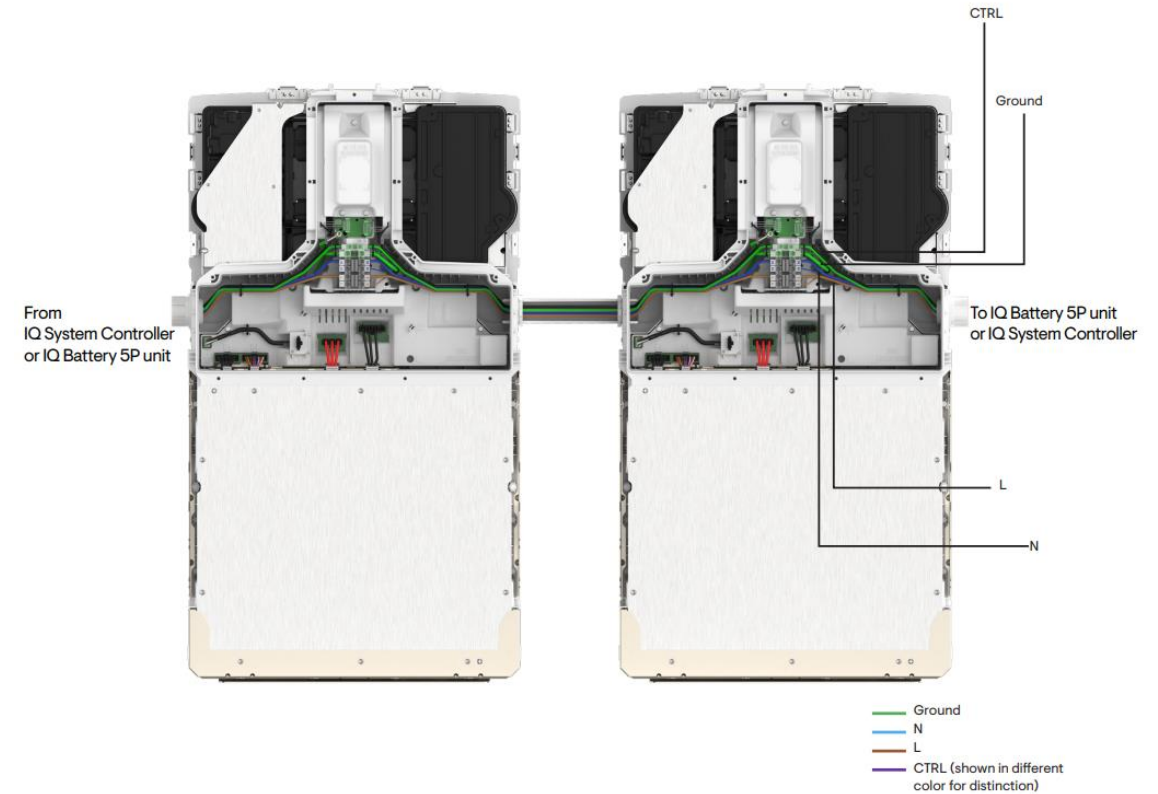
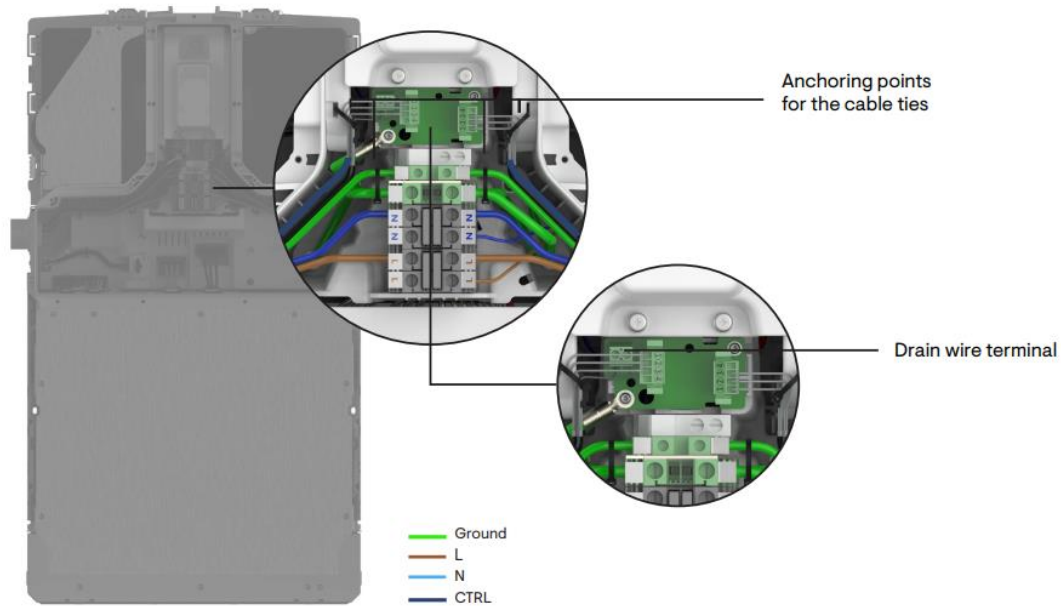
LED 1		
STATE	STATUS	ÉTAT
—	SYSTEM CONTROLLER (SYS CON) OFF	SYSTEM CONTROLLER (SYS CON) DÉSACTIVÉ
---	SYS CON ON, BOOTING	SYS CON ACTIVÉ, EN COURS DE DÉMARRAGE
—	SYS CON ON, OPERATIONAL	SYS CON ACTIVÉ, OPÉRATIONNEL
—	SYS CON ERROR	SYS CON EN ERREUR
---	SYS CON FW UPGRADE	MISE À NIVEAU DU MICROLOGICIEL SYS CON EN COURS
LED 2		
—	SYS CON OFF	SYS CON DÉSACTIVÉ
---	SYS CON ON, BOOTING	SYS CON ACTIVÉ, EN COURS DE DÉMARRAGE
—	SYS CON ON-GRID	SYS CON EN RÉSEAU
—	SYS CON OFF-GRID	SYS CON HORS RÉSEAU
---	SYS CON SYNCHRONIZING TO GRID	SYS CON EN SYNCHRONISATION AVEC LE RÉSEAU
—	SYS CON IN RAPID SHUT-DOWN OR MANUAL OVERRIDE MODE	SYS CON EN MODE ARRÊT RAPIDE OU DÉRIVATION MANUELLE ②
⑩		
⑨		
NO LED	STEADY LED	BLINKING LED
VOYANT DEL ÉTEINT	VOYANT DEL ALLUMÉ	VOYANT DEL CLIGNOTANT



Anatomy of IQ Battery 5P

During installation and some troubleshooting practices, installers must remove the DC Disconnect switch.

See the wiring configuration when the DC Disconnect switch is removed.



To learn more about IQ Battery 5P wiring, see the [video training series](#).

Anatomy of the IQ Battery 5P

Functionality of the IQ Battery 5P
DC Disconnect switch and LED indicator are combined into a single button.

You can access the DC Disconnect switch without removing the cover.

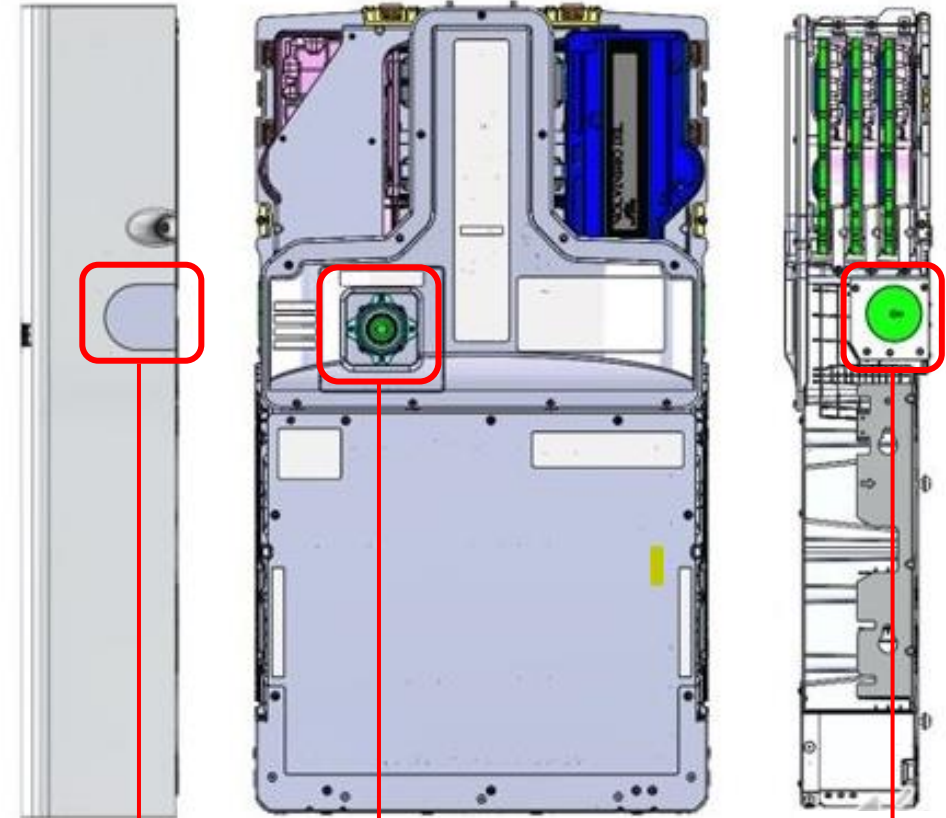
To learn more about IQ Battery 5P wiring, see the [quick install guide](#).

External View



DC Disconnect switch and LED

Internal View



Knockout for conduit entry

DC Disconnect switch

AC wiring entry

IQ Battery 5P LEDs

All IQ Battery 5P LED states are listed below.

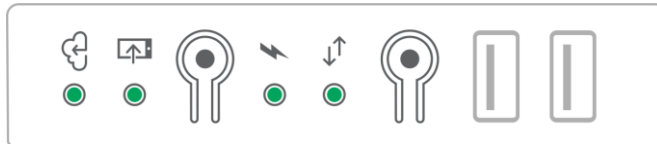
STATE	DESCRIPTION
UNCOMMISSIONED	
Flashing blue	After booting up, IQ Battery 5P has paired with an IQ Gateway but has not passed the commissioning three-way handshake to confirm that it is an Enphase device
Flashing green	After passing the three-way handshake with the IQ Gateway
AFTER COMMISSIONING (NORMAL OPERATION)	
Rapidly flashing yellow	Starting up/establishing communications
Red double flash	Error.
Solid yellow	Not operating due to high temperature.
Solid blue or green	Idle. Color transitions from blue to green as the state of charge increases. Check Enphase Installer Platform for charge status
Soft pulse blue	Discharging
Soft pulse green	Charging
Soft pulse yellow	Sleep Mode
Red triple flashes	DC switch OFF
Red one-second flash	Rapid shutdown mode
Off	Not operating. See “Troubleshooting”

IQ Gateway LEDs and buttons

The IQ Gateway has four LED indicators and two buttons.

Refer to the following pages to understand what each LED indicator and button means.

IQ Gateway LED and buttons



Standalone IQ Gateway LED and button arrangement







IQ Gateway LEDs and buttons

LED indicators on the IQ Gateway (Envoy S)








Enphase Cloud communication LED

-  Green when an internet connection is available and connected to the Enphase Cloud
-  Flashing green when attempting to connect to the Enphase Cloud
-  Solid amber when connected to the local network only i.e., no internet
-  Off if no network is available





Power production LED

-  Green light when all microinverters are producing power.
-  Flashing green when an upgrade of the microinverters is in progress.
-  Amber if one or more microinverters stop producing power.
-  Flashing amber when microinverters are not yet detected.
-  Off if all the microinverters stop producing or communicating.



AP mode LED

-  Green when AP mode is enabled and the Gateway's Wi-Fi network is available.
-  Off when AP mode is disabled.
- Off is default unless the AP mode is enabled.



AP mode button

Starts the Gateway's wireless Access Point (AP) to connect a mobile phone directly.

The AP mode button provides WPS to pair the IQ Gateway to a wireless network without homeowner credentials.

IQ Gateway LEDs and buttons

While the device scan button is an available option, it is recommended to use the Enphase Installer App to scan the specific serial numbers and provision.



Device scan button

Only used by the installer during installation or to configure the system.

Starts/stops a 15-minute scan for devices over the power line.

All LED's



Flashing green when a software upgrade is in progress.



Flashing amber when IQ Gateway is booting up.



Device communication LED



Flashing green when the Gateway is scanning for microinverters.



Green when all microinverters at the site are communicating with the Gateway.



Amber if one or more microinverters are not communicating with the Gateway.



Off if all the microinverters are not communicating with the Gateway.

Communications Kit wiring



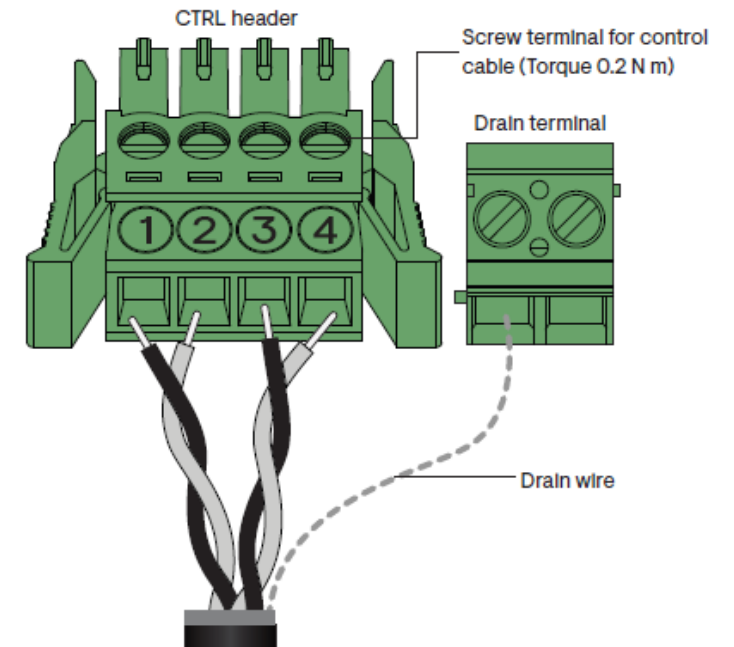
Control cable wiring prep

Always use recommended control cables during installation. Wiring should not exceed 76 meters in length between resistors.

The tested and supported control cable models are Electra EAS7302PHV/EAS7502PHV or the LAPP 1270802. To purchase a control cable, contact your local distributor.

- Before pulling the cable through the conduit, you must perform continuity checks
- Label both ends of each wire with small colored clips or stickers
- Labels must match the headers

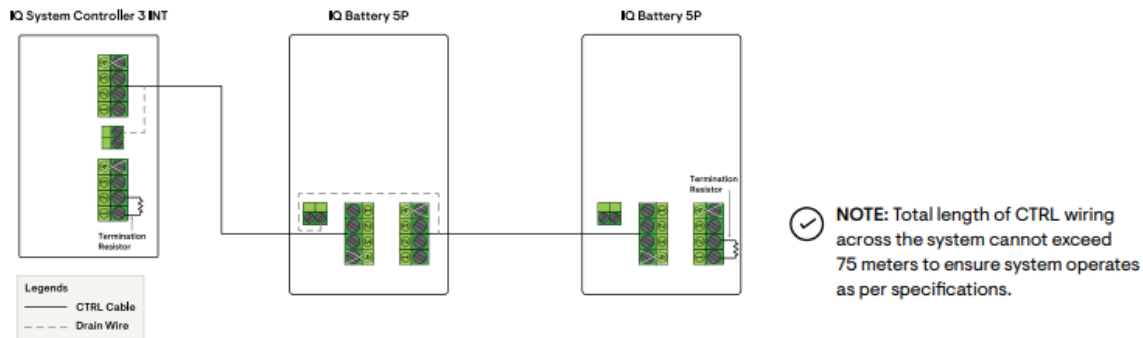
For more information, refer to the [quick install guide](#).



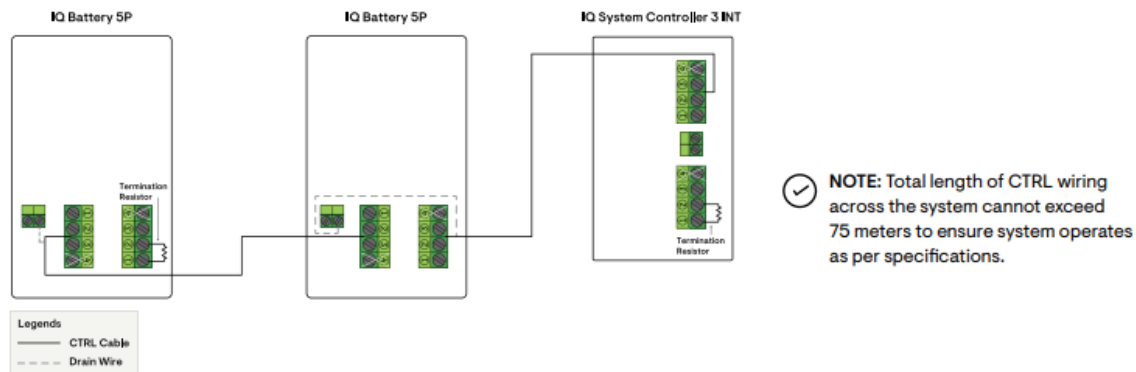
Sequence 1

The diagram below demonstrates the proper control cable wiring for sequence 1.

Sequence 1: IQ System Controller 3 INT → IQ Battery(s) 5P



Sequence 2: IQ Battery(s) 5P → IQ System Controller 3 INT



IQ System Controller 3 INT Quick Install Guide

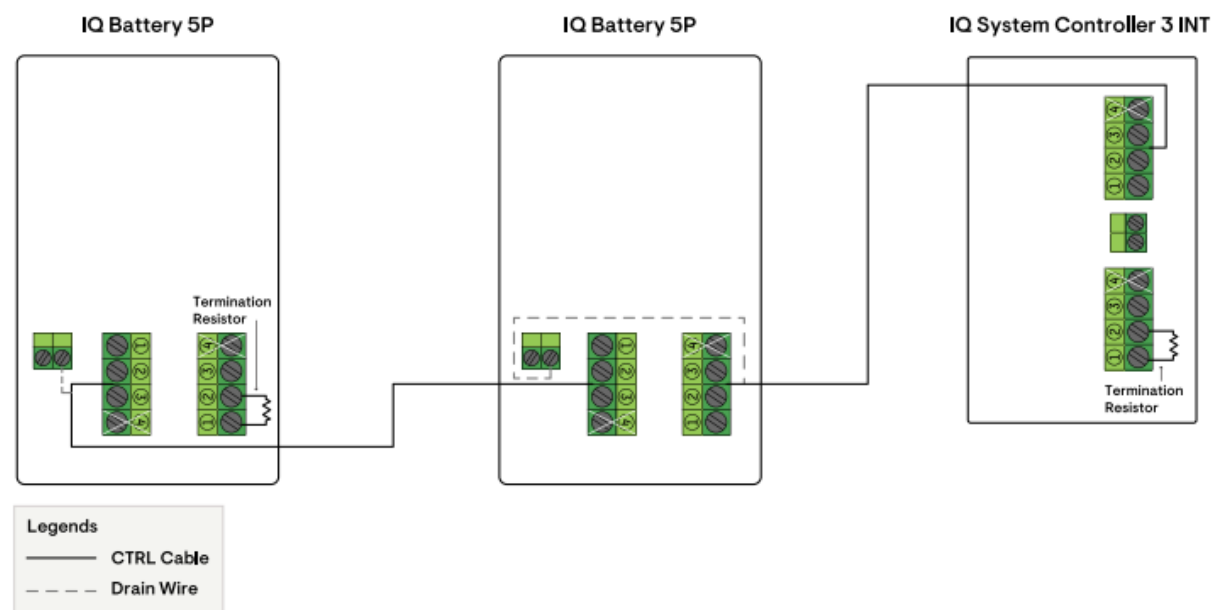
Refer to the [quick install guide](#) for sequencing information and instructions.

Sequence 2

The diagram below demonstrates the proper control cable wiring for sequence 2.

Refer to the [quick install guide](#) for sequencing information and instructions.

Sequence 2: IQ Battery(s) 5P → IQ System Controller 3 INT



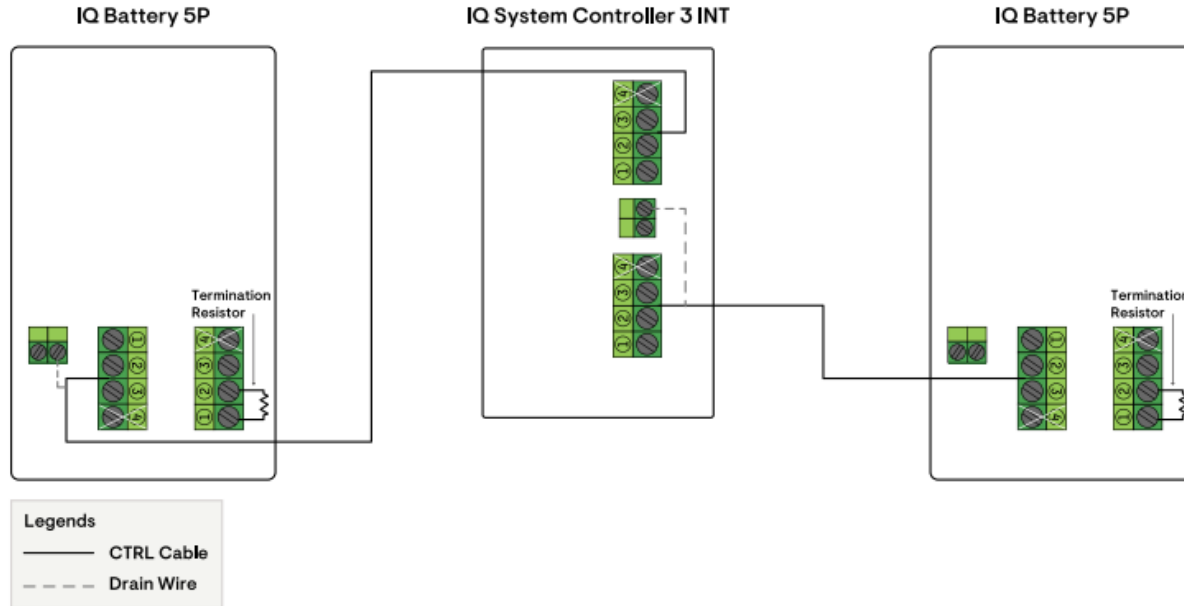
✓ **NOTE:** Total length of CTRL wiring across the system cannot exceed 75 meters to ensure system operates as per specifications.

Sequence 3

The diagram below demonstrates the proper control cable wiring for sequence 3.

Refer to the [quick install guide](#) for sequencing information and instructions.

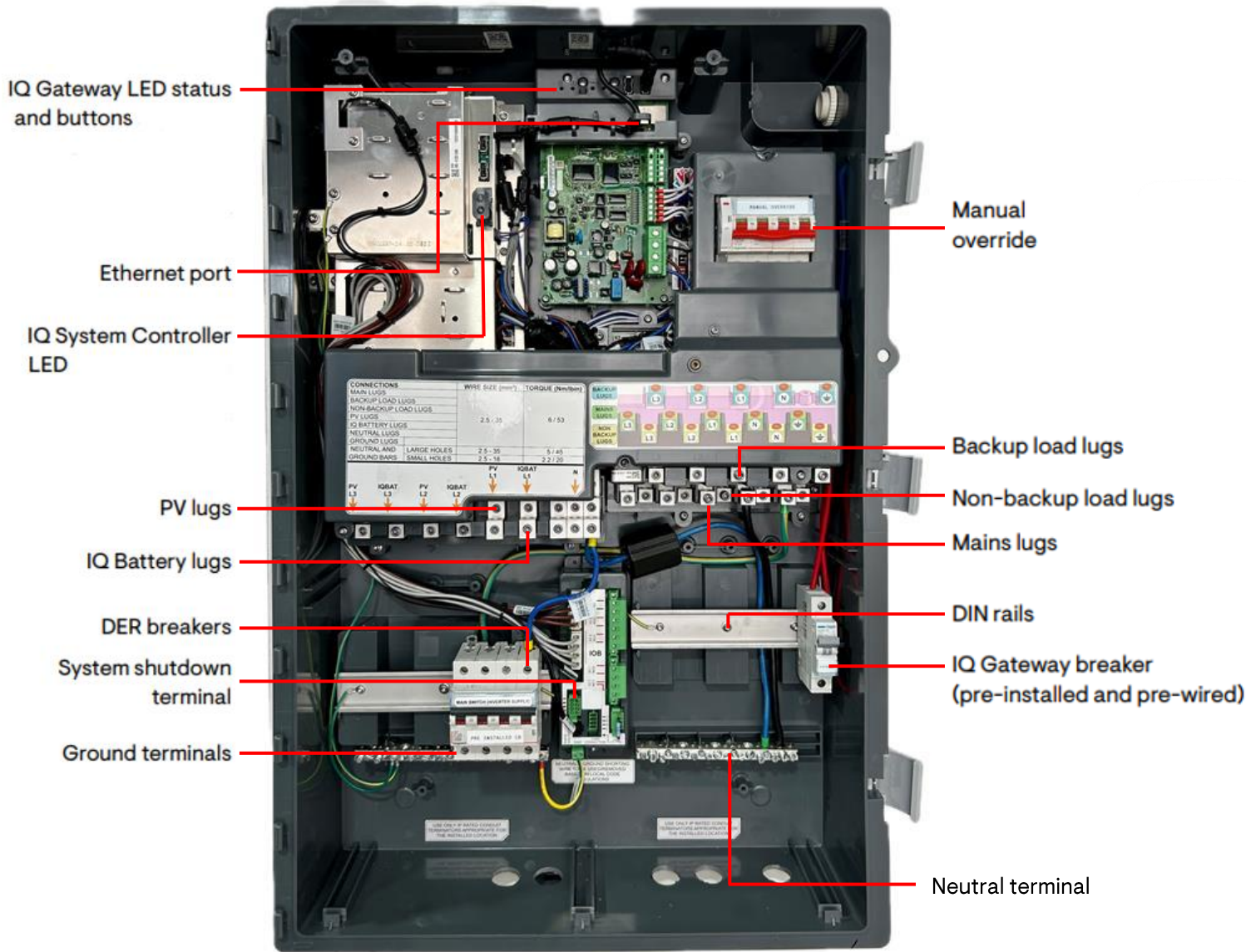
Sequence 3: IQ Battery(s) 5P → IQ System Controller 3 INT → IQ Battery(s) 5P



✓ **NOTE:** Total length of CTRL wiring across the system cannot exceed 75 meters to ensure system operates as per specifications.

IQ Gateway USB

Installers must connect the IQ Gateway USB at the time of installation.



Troubleshooting the IQ System Controller 3



Power cycle

To power cycle the IQ System Controller 3, refer to the following instructions.

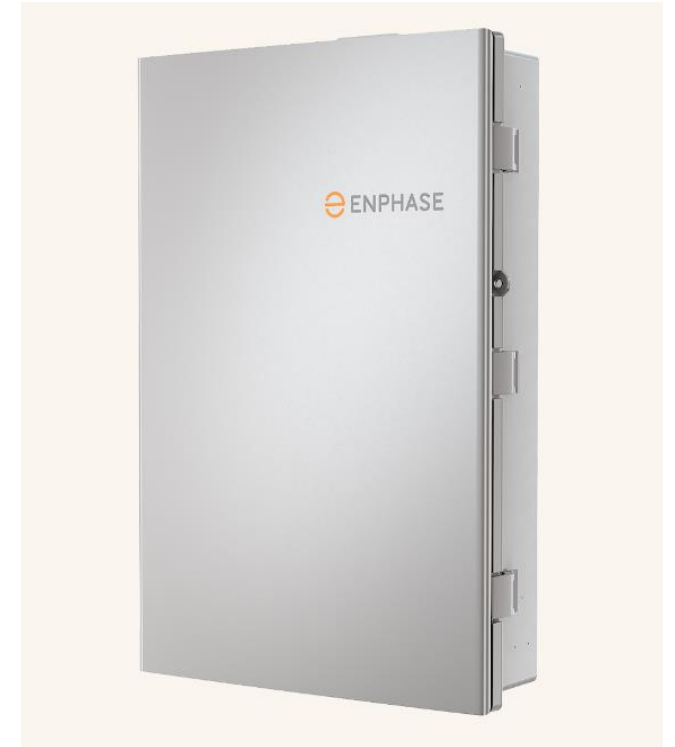
Step 1

Turn **OFF** the Enphase Energy System:

- a. Turn **OFF** the IQ Battery DC Disconnect switch.
- b. Turn the Rapid shutdown switch to **OFF** position.
- c. Turn **OFF** the IQ Battery circuit breaker and PV circuit breaker in the IQ System Controller.
- d. Turn **OFF** the IQ System Controller mains circuit breaker and the incoming grid supply.
- e. Turn **OFF** the IQ System Controller backup and non-backup loads circuit breaker.

Step 2

Use a multimeter to confirm 0 VA at the PV, IQ Battery, mains, and load terminals.



Power cycle

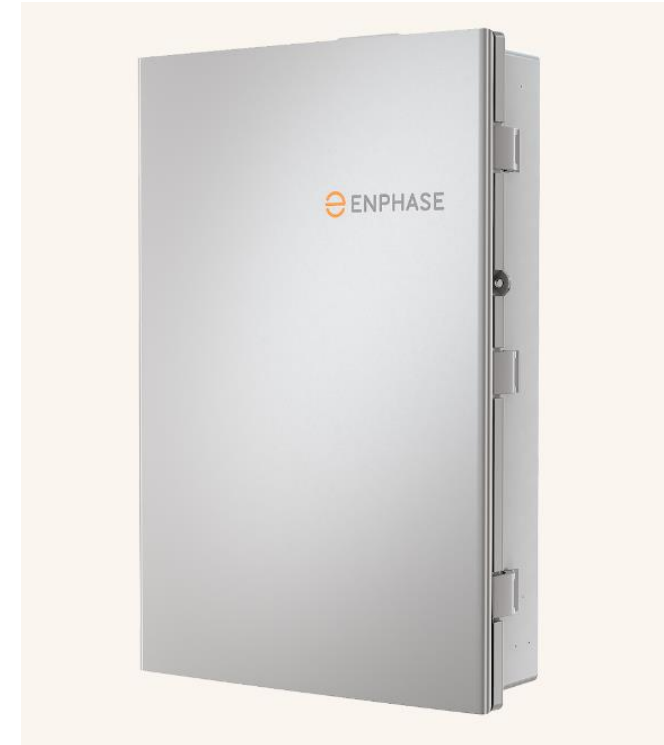
Step 3

Turn **ON** the Enphase Energy System:

- a. Turn **ON** the IQ System Controller mains circuit breaker and the incoming grid supply.
- b. Turn the Rapid shutdown switch to **ON** position.
- c. Turn **ON** the IQ System Controller backup and non-backup loads circuit breaker.
- d. Turn **ON** the IQ Battery circuit breaker and PV circuit breaker in the IQ System Controller.
- e. Turn **ON** the IQ Battery DC Disconnect switch.

Step 4

Use a multimeter to confirm AC voltage at the PV, IQ Battery, mains, and load terminals.



IQ Gateway not communicating due to power loss

If communication to the IQ Gateway board inside the IQ System Controller 3 fails, the LED will not illuminate.

Refer to the instructions below to troubleshoot.

Step 1

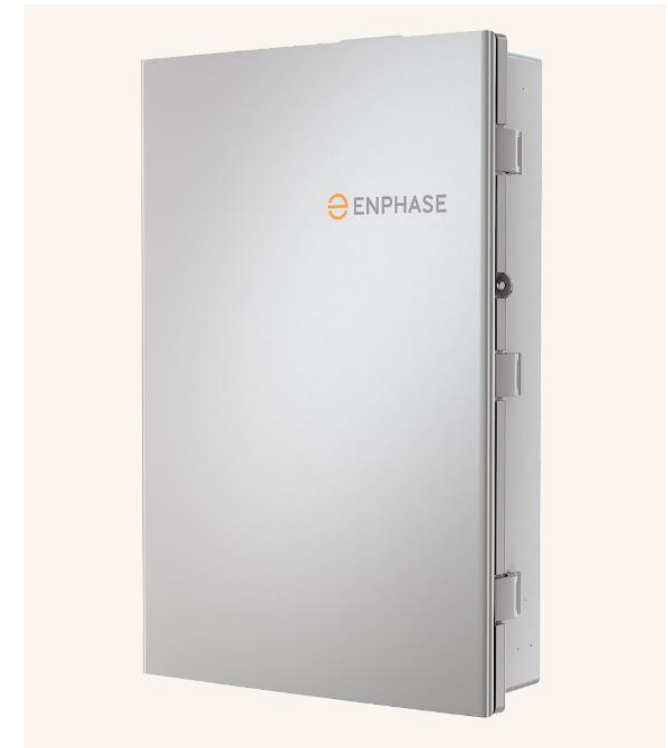
Verify that the USB cable is properly connected from the IQ Gateway to the IQ System Controller. Unseat and reseal both ends of the USB cable.

Step 2

Check the IQ System Controller LED. If the IQ System Controller LED is not illuminated green, test the AC voltage on the main lug of the IQ System Controller.

If voltage is present, but the IQ System Controller LED fails to illuminate, contact Enphase support.

If voltage is not present at the IQ System Controller mains lug, test the voltages at the main switchboard. If there is no voltage present, contact the site's energy provider.



Stuck in System Shutdown (SSD) state

When an installer engages System Shutdown (SSD), the Enphase Energy System will power off and the home will connect to the grid.

Installers must confirm that the Rapid Shutdown switch (RSD) is **ON** prior to commissioning. If the IQ System Controller is in SSD, the LEDs will illuminate red.

If the system is stuck SSD, the IQ System Controller LEDs will stay illuminated red after attempting to disengage. To troubleshoot, refer to the following instructions.

Step 1

To ensure the safety of maintenance technicians, switch **OFF** the IQ Battery DC Disconnect switch and PV AC circuit breakers.

Step 2

Verify that the IQ Battery circuit breakers are switched **OFF**. Then, switch them **ON**.

If the issue persists, contact Enphase support.

Troubleshooting the IQ Battery 5P



Power cycle

Refer to the following instruction to power cycle an IQ Battery 5P.

Step 1

Turn **OFF** the IQ Battery DC Disconnect switch.

Step 2

Turn **OFF** the IQ Battery AC circuit breaker.

Step 3

Turn **ON** the IQ Battery circuit breaker or isolator.

Step 4

Turn **ON** the IQ Battery DC Disconnect switch.



Not reporting

If an IQ Battery 5P stops reporting to the IQ Gateway, the LED will not illuminate. To resolve, refer to the following instructions.

Step 1

Verify that the CAN cable is wired properly. Refer to the [quick install guide](#).

Step 2

Open the IQ Battery 5P dead front. Verify that the B1 – B4 cable is wired properly. Refer to the [quick install guide](#).

Step 3

Power cycle the IQ System Controller.

If the IQ Battery 5P LED still fails to illuminate, contact Enphase support.



PCUs not reporting

If an IQ Battery 5P PCUs flash red, they are not reporting. To resolve, refer to the following instructions.

Step 1

Using a multimeter, check the AC voltage at both terminals. Refer to the [quick install guide](#) if needed. If voltage is present, but the IQ Battery PCUs are still flashing red, contact Enphase support.

If no voltage is present, verify that the IQ Battery isolator is receiving 230V line to neutral.

Step 3

If the IQ Battery isolator is not receiving voltage, verify that the system is wired correctly. Correct if needed.

Step 4

Check the AC voltage at the IQ Battery lugs in the IQ System Controller. If voltage is present, but the IQ Battery PCUs are still flashing red, contact Enphase support.

PCUs not reporting

Step 5

If no voltage is present at the IQ Battery lugs, check the AC voltage at the mains lug. If voltage is present, but the IQ Battery PCUs are still flashing red, contact Enphase support.

Step 6

If no voltage is present at the mains lug, verify that the cables coming from the mains supply are wired correctly.

No LEDs when the DC Disconnect switch is on

If the IQ Battery 5P LED fails to illuminate when the DC Disconnect switch is **ON** and engaged, refer to the following instructions.

Step 1

Verify that DC Disconnect switch cable is connected to the CS1 terminal on the IQ Battery. It does not come prewired into the CS1 terminal.

Step 2

If connected properly, wait at least one minute. Then, press the IQ Battery DC Disconnect switch again.

Step 3

Check the IQ Battery PCU LED to verify whether the IQ Battery is receiving AC voltage. If it is illuminated green, voltage is present.

If it is flashing red, the IQ Battery is not receiving AC voltage. Contact Enphase support.

Not communicating

If one or more IQ Battery 5P stops communicating, refer to the following instructions.

Step 1

Using a multimeter, check L - N AC voltage at the IQ Battery lugs in the IQ System Controller. It should range between 230 VA - 249 VA.

Step 2

Check L - N AC voltage at the AC cable termination in the IQ Battery. It should range between 230 VA - 249 VA.

Step 3

Verify that the CAN cable is wired properly. Refer to the [quick install guide](#) if needed.

Contact Enphase support if further assistance is needed.

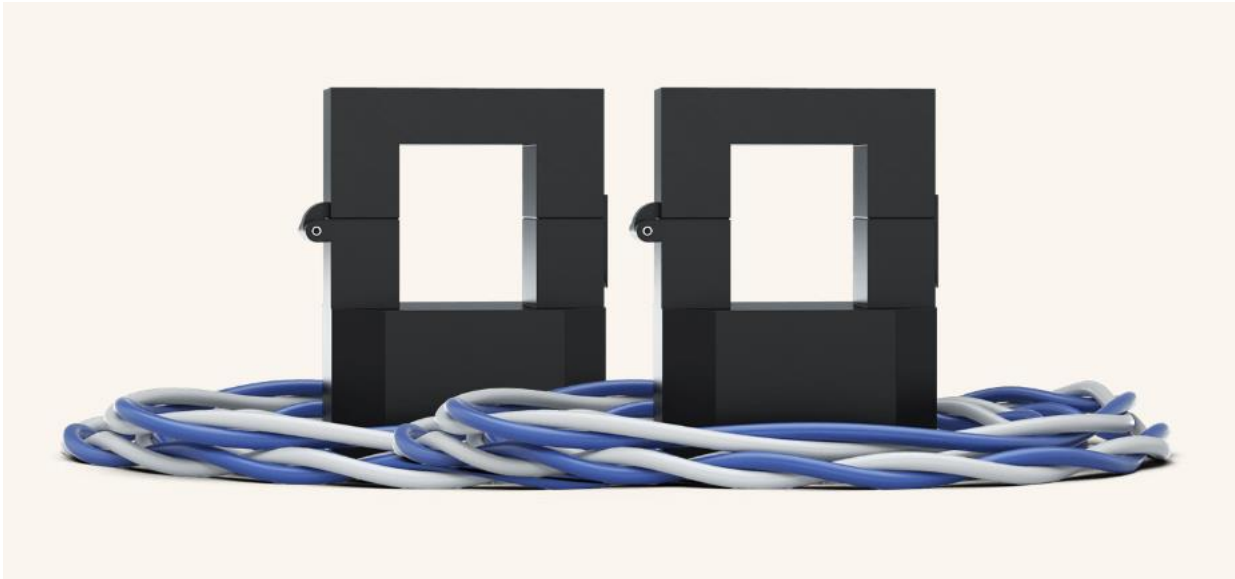
Meters



Current Transformer (CT) installation requirements

You are required to use the Enphase Installer App CT wizard to commission CTs.

Refer to the [YouTube training video](#) for more information.



CTs are prewired on the IQ System Controller. They are inbuilt, and do not change polarity.

Never flip CTs for systems with an IQ System Controller installed.

CT Phasing

When phasing CTs, the number of phases should always equal the number of production lines.

For example, a two-phase PV is L1+L2, although there is a three-phase voltage reference.

It is common practice to run a 3rd party PV through the production CT. For more information, refer to the provided [tech brief](#).

Installers must send all phasing design requests to the following email address:
drs_au@enphaseenergy.com

Thank you



Revision history

REVISION	DATE	DESCRIPTION
ING-00034	February 2024	Initial version



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