

# Wiring the neutral conductors in the IQ System Controller

## Applicable regions

Australia and New Zealand

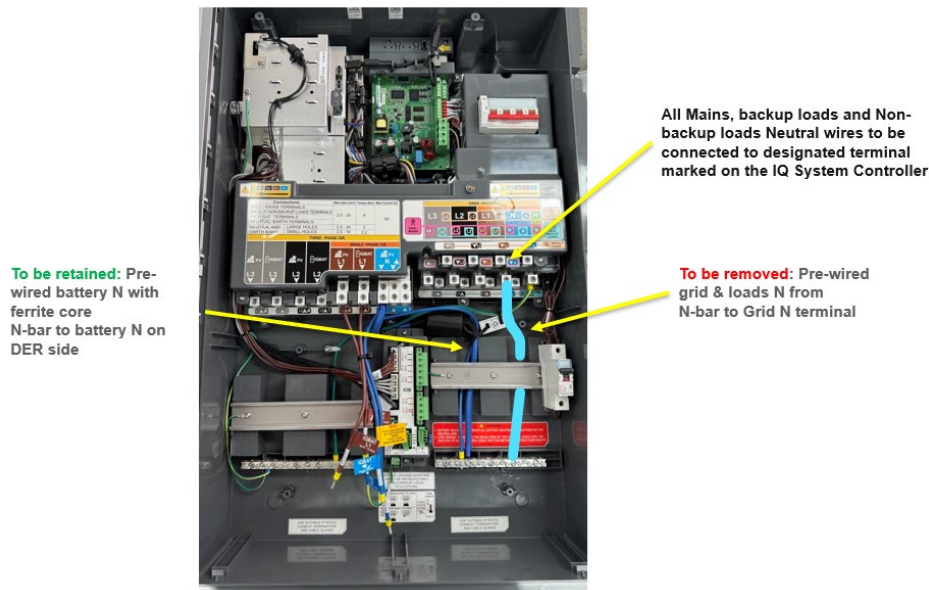
## Overview

This document provides guidelines for correctly wiring the neutral conductors in the IQ System Controller when installing a new Enphase Energy System with IQ Batteries and IQ System Controller in Australia and New Zealand. This wiring scheme is to ensure the smooth operation of all the devices in the system and to follow the local wiring regulations.

The following instructions apply specifically to the installation and wiring of new IQ System Controllers. Existing commissioned and operational Enphase Energy Systems do not require any wiring modifications.

## Steps to connect the neutral wires

1. After installing the IQ System Controller unit on the wall and opening the dead front for wiring, check if the unit has the neutral wire connected from the N-bar at the bottom to the mains N lug (all situated on the lower right side). Remove this N-wire. Skip step 1 if the unit does not have this pre-wired neutral connection.



2. Connect all mains, backup loads, and non-backup loads neutral wires to the designated terminals marked on the IQ System Controller in the same manner as the live wires are connected to their corresponding terminals.
3. Connect only the battery-neutral cables to the N-bar in the IQ System Controller. The PV neutral cable should be connected to the designated PV neutral terminal on the IQ System Controller.

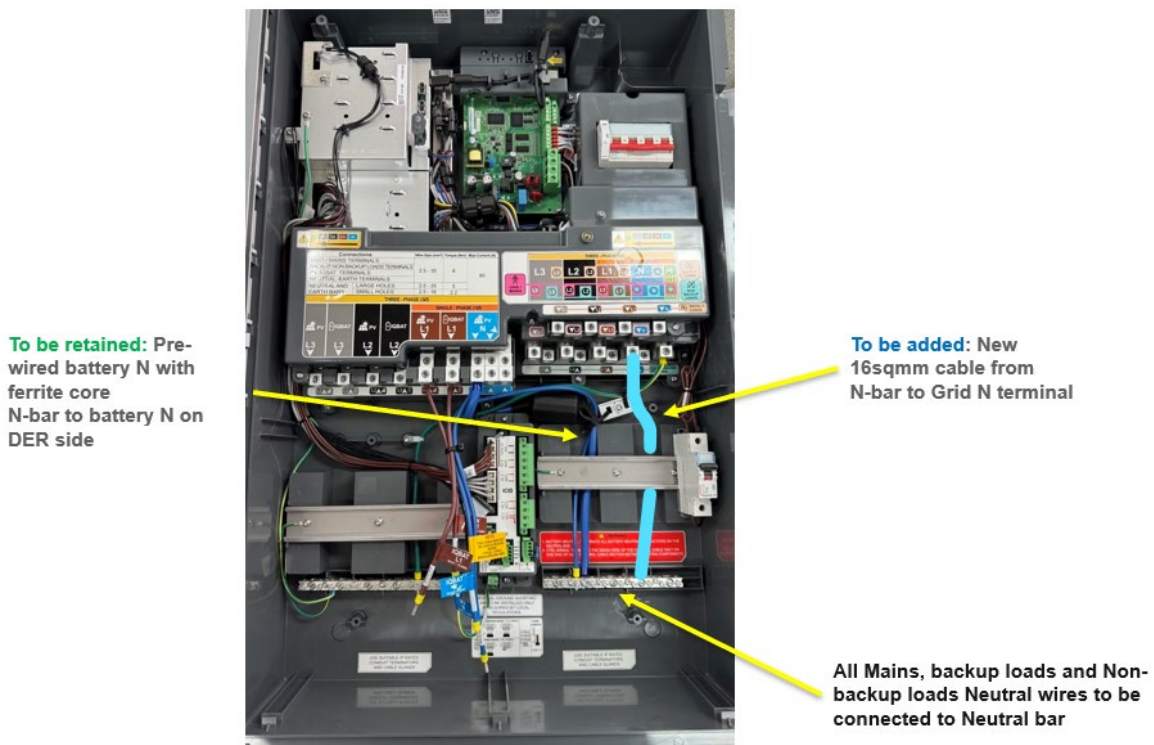
This wiring scheme ensures the smooth operation of all the devices in the system and follows the local wiring regulations in Australia and New Zealand.

## Alternate wiring scheme for neutral conductors

There might be cases when the local regulators or inspectors could insist on having a common neutral wire connected from the neutral bar to the neutral terminal inside the IQ System Controller. Additionally, all mains supply and load neutral conductors would need to be connected to the neutral bar.

In such cases, connect a 16 mm<sup>2</sup> cable from the neutral bar to the mains neutral terminal as shown in the following figure, and connect all the mains and loads neutral wires to the neutral bar of the IQ System Controller.

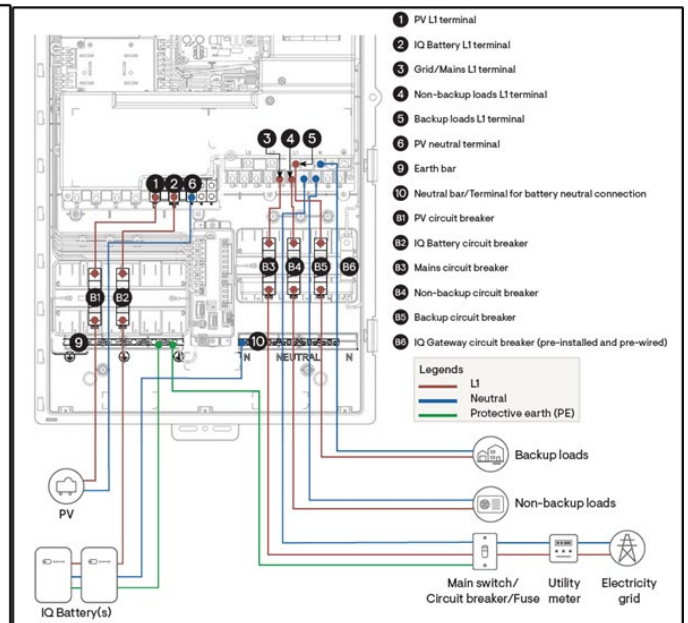
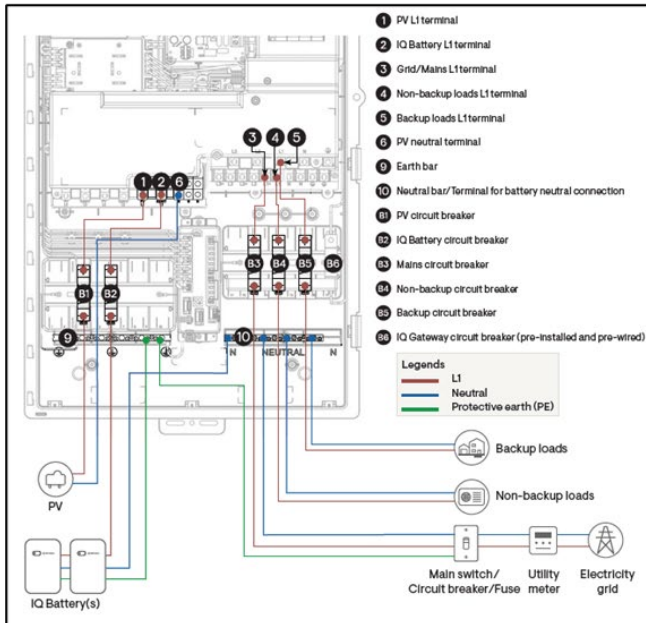
**NOTE:** This wiring scheme should be used **ONLY** when asked/mandated by local regulator or inspector.





## Wiring diagrams


The following wiring diagrams represent the detailed wiring scheme for a single-phase and three-phase system.

### Single-phase system with an IQ System Controller

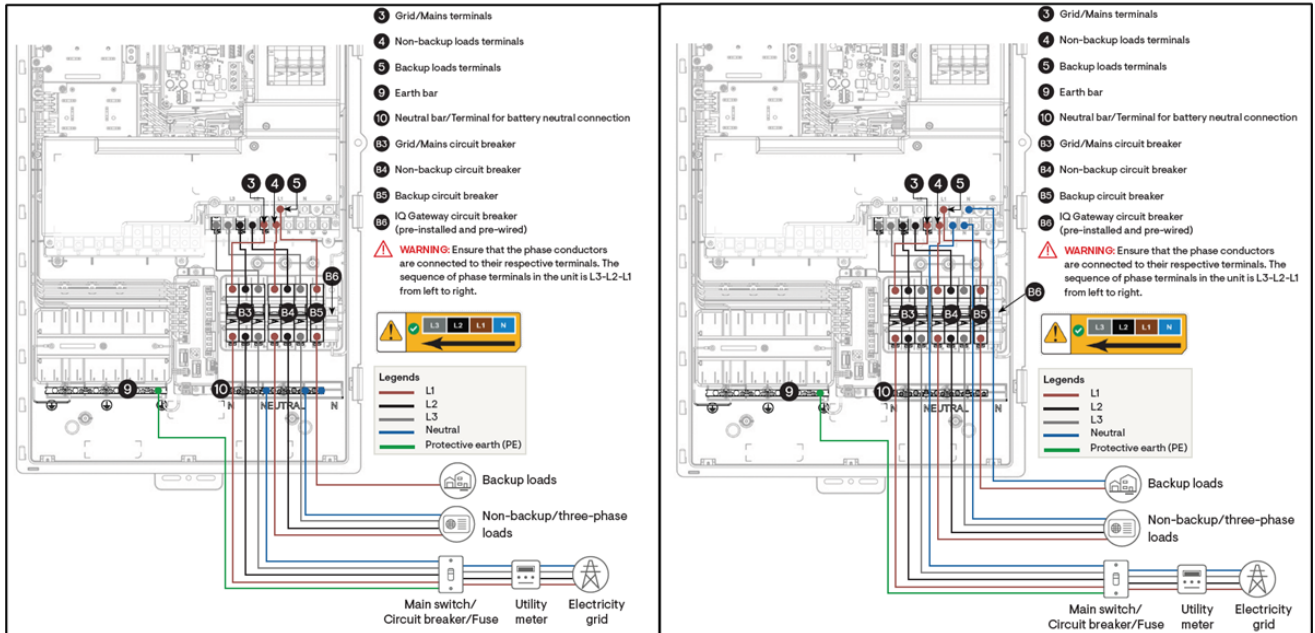


 The neutral conductors (**In Blue**) should be directly wired to the designated neutral terminals of the mains, backup loads, and non-backup loads in the IQ System Controller instead of connecting all of them on the N-bar.

 IQ Battery neutral wire should be connected to the N-bar.

 The grid neutral will not be disconnected in backup mode. If there are no separate backup or non-backup panels, then wire only one neutral wire from the mains panel or as per local regulation.

### Three-phase system with an IQ System Controller

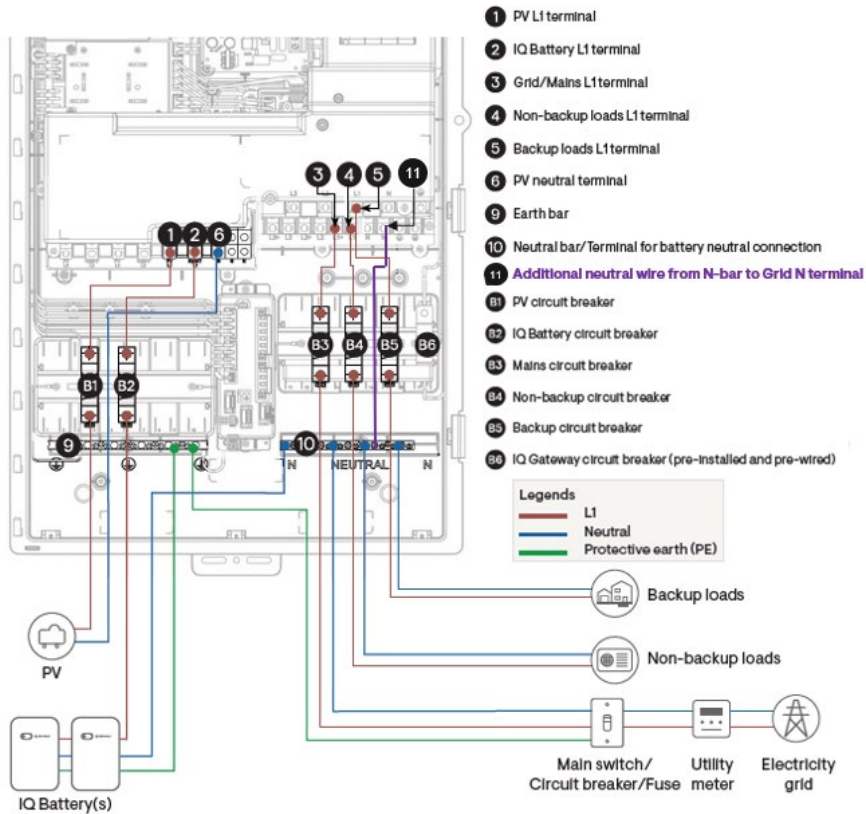


**⚠** The neutral conductors (In Blue) should be directly wired to the designated neutral terminals of the mains, backup loads, and non-backup loads in the IQ System Controller instead of connecting all of them on the N-bar.

**⚠** IQ Battery neutral wire should be connected to the N-bar.

**⚠** The grid neutral will not be disconnected in backup mode. If there are no separate backup or non-backup panels, then wire only one neutral wire from the mains panel or as per local regulation.

## Alternate wiring scheme to comply with local regulations



**⚠** The additional neutral 16 mm<sup>2</sup> wire (In Purple) should be wired from the N-bar to the grid N terminal in the IQ System Controller, and all the mains and loads wires to be connected to the N-bar as shown above.

**⚠** IQ Battery neutral wire should be connected to the N-bar.

**⚠** This wiring scheme should be used ONLY when asked/mandated by local regulator or inspector.

**⚠** The grid neutral will not be disconnected in backup mode. If there are no separate backup or non-backup panels, then wire only one neutral wire from the mains panel or as per local regulation.

## Revision history

Revision	Date	Description
TEN-00035-2.0	March 2025	Updated the wiring scheme.
TEN-00035-1.0	February 2025	Initial release.

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