

## UL 1741 compliance for IQ Battery 5P system components

### Overview of Enphase Energy System with IQ Battery 5P components

IQ Battery 5P in the Enphase Energy System requires IQ System Controller 3/3G and IQ Combiner 5/5C for operation. The IQ Gateway in the IQ Combiner measures the PV production and IQ Battery 5P charge and discharge values. The following figure illustrates the connection between Enphase Energy System components.

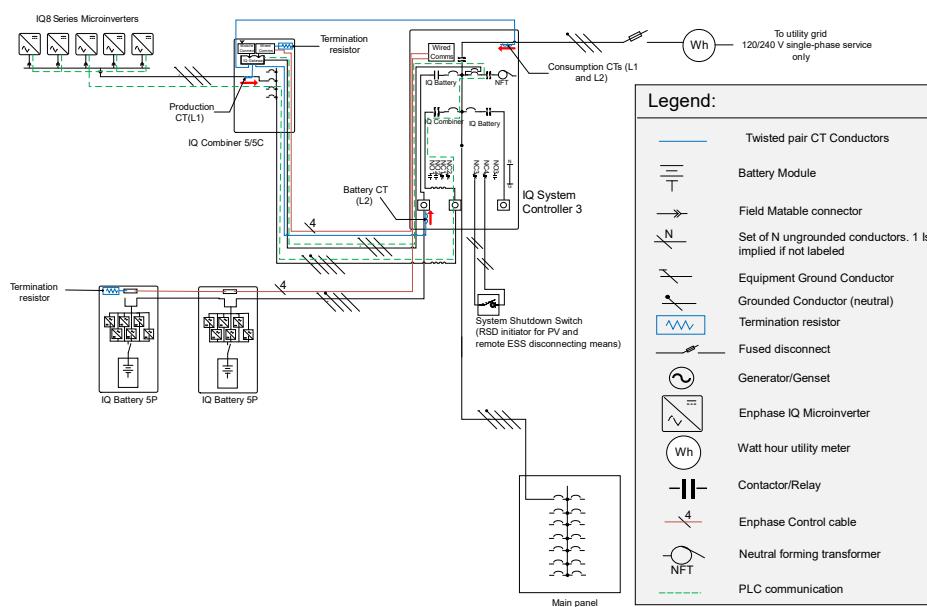


Figure 1. Whole home backup configuration with IQ8 Series Microinverters and IQ Battery 5P

The following section describes the components of IQ Battery 5P and Enphase Energy System.

### IQ System Controller 3/3G

The IQ System Controller 3/3G senses when the grid goes down and seamlessly transitions the home from grid power to backup power. IQ System Controller 3/3G disconnects the grid and powers the backup loads using the IQ Battery 5P storage system, PV system, and the electrical service panel that houses the circuits that are powered during a grid outage.

IQ System Controller 3/3G serves as the microgrid interconnect device (MID) as required by the National Electric Code (NEC) to operate without grid power. Its neutral-forming transformer (NFT) provides the neutral required for electrical operations in North America to support 120 V appliances.

The IQ System Controller has been evaluated, tested, and listed for Multi-Mode operation as a system when combined with the Enphase microinverters present inside the battery and on the PV panel. It is installed in accordance with the system installation instructions.

### IQ Microinverter

Under each solar panel lies an Enphase microinverter that converts DC power generated by the panel into AC power your home can use. Each Enphase microinverter has been evaluated to UL 1741 SB. To

find Enphase products that have been evaluated for compliance with UL 1741-SB, search file number [QIKH.E341165](#).

## **IQ Combiner 5/5C**

An IQ Combiner 5/5C consolidates interconnection equipment for your system and houses the following:

- Multiple PV branch circuit breakers to ensure streamlined installation and interconnection.
- IQ Gateway: This collects production and performance data from your Enphase Energy System and IQ Series Microinverters. It then transmits the data to the Enphase Cloud through Ethernet, Wi-Fi, or a cellular network to make it visible in the Enphase App.
- Wired communication kit: This creates a wired communication signal between the IQ Gateway, IQ System Controller 3/3G, and IQ Battery 5P.
- Mobile Connect: This device reports the performance data from your microinverters, IQ System Controller 3/3G, and IQ Battery 5P units to the cloud through a cellular network without an Ethernet or Wi-Fi connection.

## **IQ Battery 5P**

Enphase IQ Battery 5P (SKU: IQBATTERY-5P-1P-NA) is an all-in-one AC-coupled Battery Energy Storage System (BESS) with a total usable energy capacity of 5.0 kWh and a 3.84 kVA continuous power rating. Each IQ Battery 5P includes six embedded grid-forming IQ8D-BAT Microinverters (SKU: IQ8D-BAT). Refer to the IQ Battery 5P data sheet at <https://enphase.com/download/iq-battery-5p-data-sheet>.

The battery packs, internal to IQ Battery 5P, store energy for different applications, such as during a power outage or self-consumption.

The IQ Microinverters in the IQ Battery 5P units provide the voltage and frequency necessary for your solar system to operate while running off-grid. The IQ Battery 5P communicates with the IQ Gateway through a wired communication signal.

The IQ8D-BAT Microinverters comply with UL 1741 SB per the certificate of compliance (certificate number 20231030-E341165). See the following section.

The IQ Battery 5P (SKU: IQBATTERY-5P-1P-NA) utilizes six IQ8D-BAT (SKU: IQ8D-BAT-240) microinverters for power conversion. Each IQ8D-BAT unit in the battery that interfaces with the AC utility grid is UL 1741 SB compliant. Therefore, the IQ Battery 5P is UL 1741 SB compliant. The product data sheet confirms compliance with IEEE 1547:2018 (UL 1741-SB, 3rd Ed.).

## UL 1741 compliance for IQ Battery 5P system

Product/ component	Integrated component	SKU / model number	UL File number	Compliance	Web link to UL CoC
IQ Battery 5P <a href="#">(data sheet)</a>	—	IQBATTERY-5P-1P-NA	E488100	UL 9540	<a href="https://enphase.com/download/iq-battery-5p-ul9540-certificate-compliance">https://enphase.com/download/iq-battery-5p-ul9540-certificate-compliance</a>
	IQ Microinverters	IQ8D-BAT	E341165	UL 1741 SA/SB [IEEE1547:2018 and IEEE 1547.1:2020]	<a href="https://enphase.com/download/iq8d-bat-certificate-compliance-ul-1741-including-sa-sb-and-ieee-15472018">https://enphase.com/download/iq8d-bat-certificate-compliance-ul-1741-including-sa-sb-and-ieee-15472018</a>
	IQ Battery 5P cell packs	EHE-002 EHE-002 Rev 02 ZE21156-01	MH62947	UL1973	<a href="https://enphase.com/download/iq-battery-5p-ul-certification-letter-covering-ul1741-sasb-9540-1973-1998">https://enphase.com/download/iq-battery-5p-ul-certification-letter-covering-ul1741-sasb-9540-1973-1998</a>
	IQ Battery 5P BMS	—	—	UL 60730-1	<a href="https://enphase.com/download/iq-system-controller-and-iq-system-controller-233q-ul-certificate-compliance">https://enphase.com/download/iq-system-controller-and-iq-system-controller-233q-ul-certificate-compliance</a>
IQ System Controller 3  or  IQ System Controller 3G <a href="#">(data sheet)</a>	—	SC200D111C240U S01  or  SC200G111C240 US01	E341165	UL 1741 SA/SB [IEEE1547:2018 and IEEE 1547.1:2020]	<a href="https://enphase.com/download/iq-system-controller-and-iq-system-controller-233q-ul-certificate-compliance">https://enphase.com/download/iq-system-controller-and-iq-system-controller-233q-ul-certificate-compliance</a>
	—	—		UL 1741 CRD (UL letter explaining Multi-mode operation as a system)	<a href="https://link.enphase.com/iqsc-ul1741-crd-ul-letter-multi-mode-operation">https://link.enphase.com/iqsc-ul1741-crd-ul-letter-multi-mode-operation</a>
IQ Combiner 5  or  IQ Combiner 5C <a href="#">(data sheet)</a>	—	X-IQ-AM1-240-5  or  X-IQ-AM1-240-5C	E341166	UL 1741 SA/SB [IEEE1547:2018 and IEEE 1547.1:2020]	<a href="https://enphase.com/download/iq-combiner-certificate-compliance-ul-1741-edition-3-and-csa-c222-no-107-1-01-3rd-ed">https://enphase.com/download/iq-combiner-certificate-compliance-ul-1741-edition-3-and-csa-c222-no-107-1-01-3rd-ed</a>

## Revision history

Revision	Date	Description
TEN-00018-1.0	September 2024	Initial release.

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