ENPHASE.

TECHNICAL BRIEF

PV rapid shutdown and energy storage system disconnect in the Enphase Energy System

Applicable regions: North America

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1. Overview

This technical brief is intended to supplement the information available in the Enphase data sheets and installation guides. The brief clarifies specific details of system behavior when using the Enphase System Shutdown Switch (EP200G-NA-02-RSD). The brief can be shared with Authorities Having Jurisdiction (AHJs) to enable ease of permitting.

The System Shutdown Switch (EP200G-NA-02-RSD) is an accessory for the Enphase IQ System Controller 2 (EP200G101-M240US01), IQ System Controller 3 (SC200D111C240US01), IQ System Controller 3G (SC200G111C240US01), and IQ System Controller 3M (SC200D111CMC1US01). The switch is wired to the IQ System Controller 2 and IQ System Controller 3/3G/3M as per the instructions in the installation guide provided with the switch and also available at the accessories link.

NOTE: The circuit diagrams in the document only show system components relevant to Rapid shutdown or energy storage system disconnect. For complete single-line diagrams, refer to the Enphase System planning guide.

NOTE: The circuit diagrams in the document only show IQ Combiner 5/5C, IQ System Controller 3, and IQ Battery 5P. However, the notes are applicable to systems with IQ Combiner 4/4C, IQ System Controller 2, IQ System Controller 3G, and IQ Battery 3T/10T. Refer to the Compatibility matrix and Enphase System planning tech brief for details on product interoperability.

NOTE: Enphase Energy System (EES) disconnecting means may need to be mounted in a readily accessible location, within sight of equipment or outside.

NOTE: To meet additional requirements of the NEC, the Rapid shutdown device may need to be mounted in a readily accessible location or outside.

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2. Disconnecting means and Rapid shutdown options

2.1 Grid-interactive (grid-tied) systems

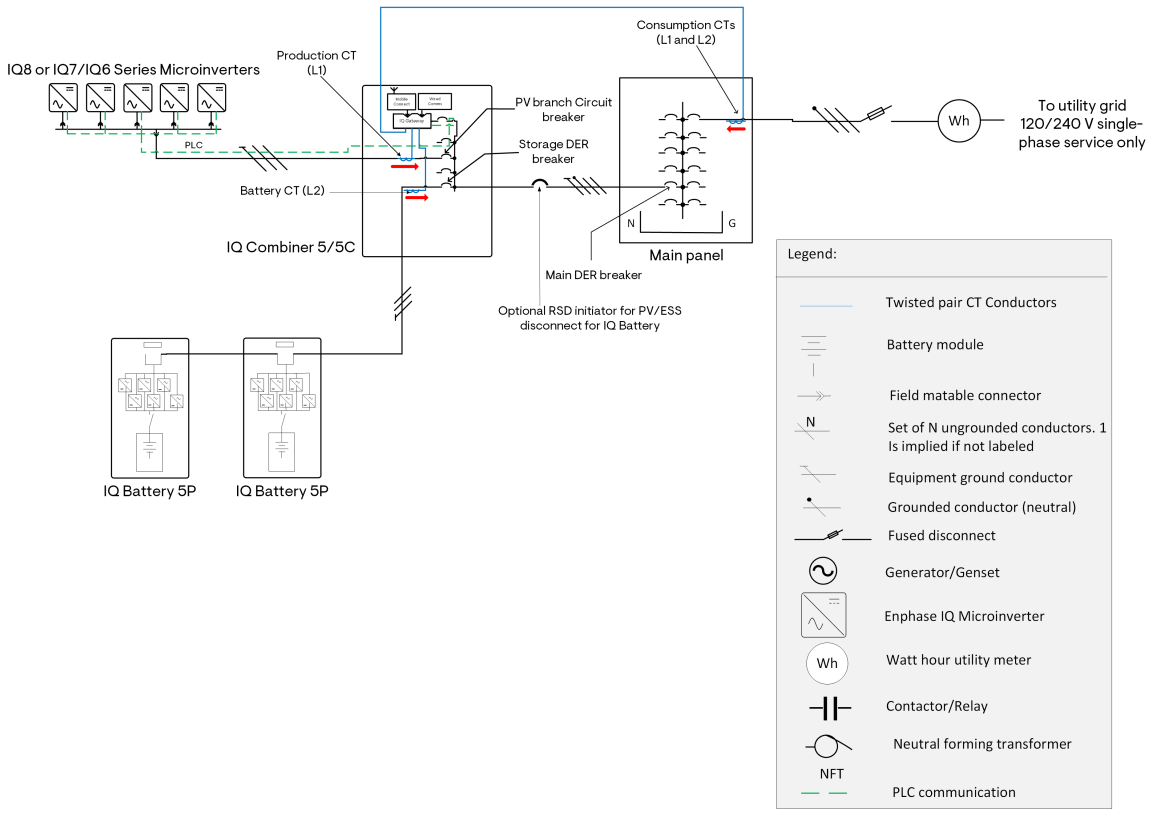

Figure 1: Grid-interactive (grid-tied system)

If the IQ Combiner is readily accessible,

1. The PV branch circuit breaker inside the IQ Combiner can act as the PV Rapid shutdown device (RSD) as specified in 2023 NEC 690.12.
2. The storage DER breaker can act as the Enphase Energy System (ESS) disconnecting means as specified in 2023 NEC 706.15.

If the IQ Combiner is not readily accessible, the main DER breaker in the main panel can also act as the Rapid shutdown device, and the ESS disconnecting means that the main panel is readily accessible.

If the IQ Combiner and the main panel are not readily accessible, an additional disconnect may need to be installed as the RSD device and ESS disconnecting means.

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2.2 Grid-forming systems

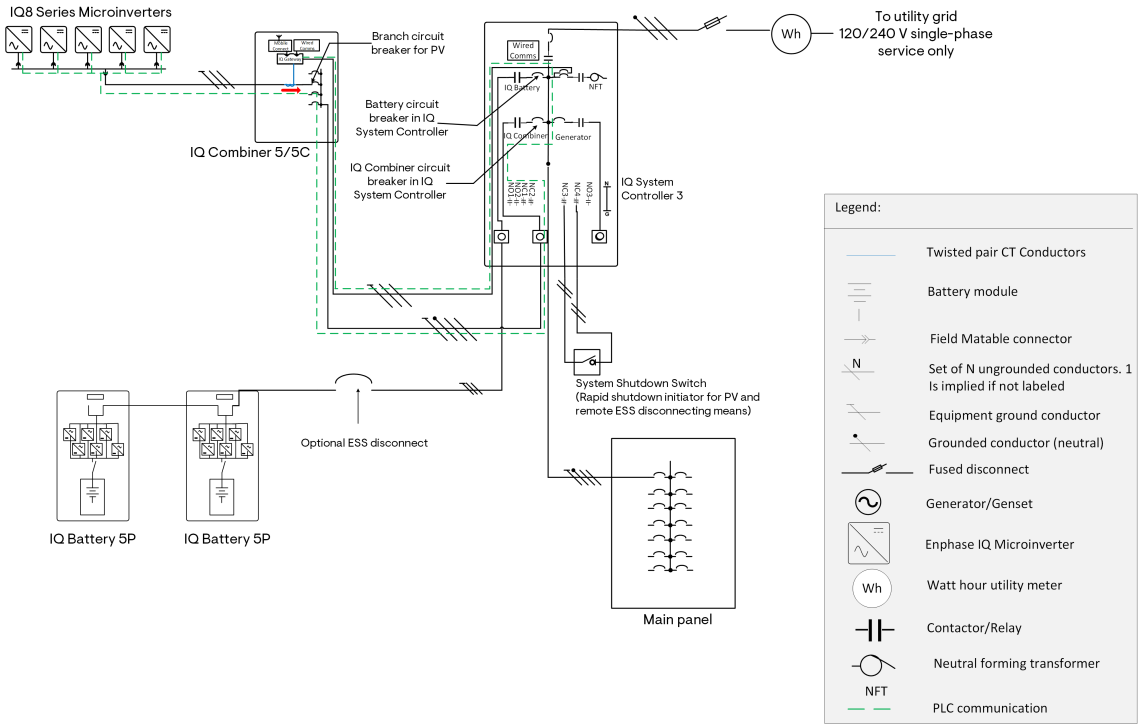

Figure 2: Grid-forming system

1. The System Shutdown Switch is a rapid shutdown switch that meets rapid shutdown requirements in 2023 NEC 690.12.
2. The System Shutdown Switch is the initiation device for 2023 706.15B emergency shutdown function requirements.
3. The System Shutdown Switch may be considered the ESS disconnecting or remote actuation means for code cycles prior to 2023.
4. Battery circuit breakers in the IQ System Controller can also be the disconnecting means. The IQ System Controller enclosure provides a means for locking.

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2.3 Grid-forming systems connected to external disconnect

System Controller 3 connected to System Shutdown Switch with external disconnect

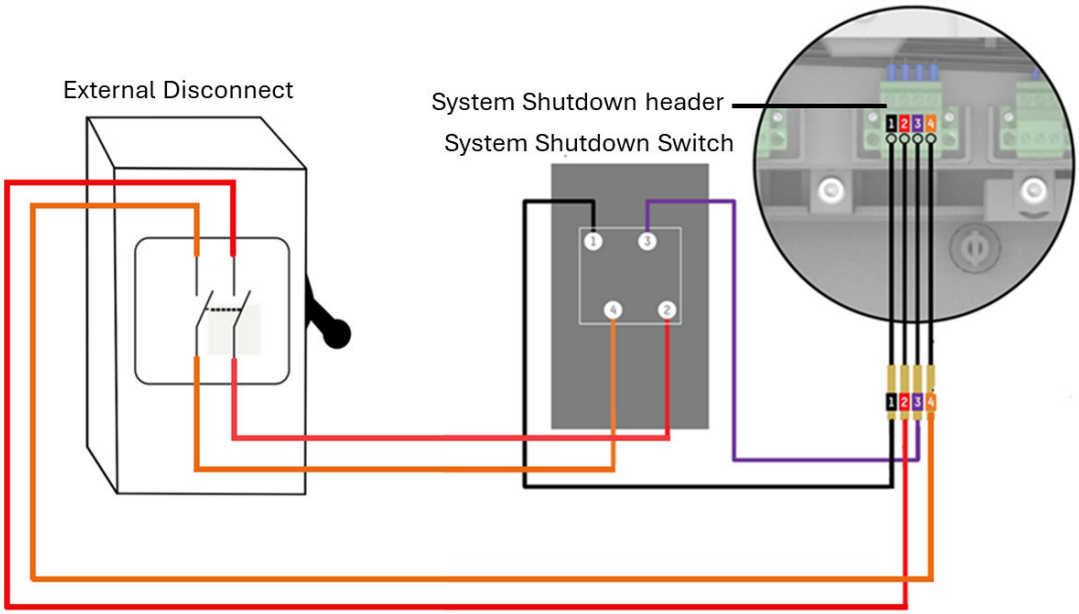

Figure 3: System Controller 3 connected to System Shutdown Switch with external disconnect

- An external disconnect can be connected in series with the System Shutdown Switch when multiple initiators for system shutdown are required. For example, one can be next to the equipment, which may have been installed inside a garage, and another can be outside the garage, where it is visible, outdoors, and readily accessible.
- The external disconnect used must be a 2-pole disconnect. Ensure the disconnect meets the rating requirements and has the proper environmental rating.
- Here are some commonly available models of 2-pole visible blade disconnects.

Model number	Make	Rating	Indoor/Outdoor
GNF221RA	Siemens	30 A	Outdoor
DT221URH-N	Eaton	30 A	Outdoor
D211NRBCP	Square D	30 A	Outdoor
D221N	Square D	30 A	Indoor
GNF221A	Siemens	30 A	Indoor
DG221NGB	Eaton	30 A	Indoor

NOTE: This is not a complete list; other brands and models may be used.

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3. Revision history

Revision	Date	Description
TEB-00052-2.0	June 2025	Added grid-forming content.
TEB-00052-1.0	July 2023	Initial release.

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