IQ System Controller 2

The IQ System Controller 2 connects the home to grid power, the IQ Battery system, and solar PV. It provides microgrid interconnect device (MID) functionality by automatically detecting and seamlessly transitioning the home energy system from grid power to backup power in the event of a grid failure. It consolidates interconnection equipment into a single enclosure and streamlines grid independent capabilities of PV and storage installations by providing a consistent, pre-wired solution for residential applications.

Easy to install

- Connects to service entrance¹ or main load center
- Supports main breaker
- Includes neutral-forming transformer
- Mounts on single-stud with centered brackets
- Provides conduit entry from bottom, left, or right
- Includes color coded wires for ease of wiring

Flexible

- Can be used for Sunlight Backup, Home Essentials Backup, or Full Energy Independence
- Integrates with select AC standby generators. See Generator Integration Tech Brief for list of generators

Safe and reliable

- Enphase Energy System Shutdown Switch can be used to disconnect PV, battery, and generator systems
- It acts as a rapid shutdown initiator of grid forming IQ8 PV Microinverters for safety of maintenance technicians/first responders
- IQ System Controller 2 has a 10-year limited warranty

¹. IQ System Controller 2 is not suitable for use as service equipment in Canada.

To learn more about Enphase offerings, visit enphase.com

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**MODEL NUMBERS**

- **EP200G101-M240US01**
  - IQ System Controller 2 with neutral-forming transformer (NFT) and microgrid interconnect device (MID).
  - Streamlines grid-independent capabilities of PV and storage installations.

- **NOTE:** No longer sold separately.

- **EP200G-SC2-RSD-KIT**
  - Includes the above plus Enphase Energy System Shutdown Switch (EP200G-NA-02-RSD) with red, black, orange and purple 12 AWG wires, and a breaker for powering IQ Gateway (refer to figure 1).

- **EP200G-SC2-RSD-BRK-KIT**
  - Includes the above plus three Eaton BR220B breakers for either IQ System Controller 2 or IQ Combiner, two Eaton BR240B breakers and one Eaton BR260 breaker for IQ System Controller 2, two X-IQ-NA-HD-125A hold-down kits for IQ Combiner, and two EP200G-NA-HD-200A hold-down kits for IQ System Controller 2 (refer to figures 2A and 2B).

**ACCESSORIES AND REPLACEMENT PARTS (ORDER SEPARATELY AS NEEDED)**

- **EP200G-NA-XA-E3**
  - IQ System Controller 2 replacement circuit board.

- **EP200G-NA-HD-200A**
  - Eaton type BR circuit breaker hold-down kit, BRHDK125.

- **CT-200-SPLIT**
  - 200 A split core current transformer for generator metering (± 2.5% accuracy).

- **BRK-20A40A-2P-240V**
  - Quad breaker, 20 A/40 A, 10 kAIC, Eaton BQC220240.

- **EP200G-HNDL-R1**
  - IQ System Controller 2 installation handle kit.

- **EP200G-LITKIT**
  - IQ System Controller 2 literature kit. Includes labels, feed-through headers, screws, filler plates, and QIG.

- **EP200G-NA-02-RSD**
  - 2 pole Enphase Energy System Shutdown Switch.

**ELECTRICAL SPECIFICATIONS**

- **Nominal voltage/range (L-L)**: 240 VAC/±20%
- **Voltage measurement accuracy**: ±1% (±1.2V L-N and ±2.4V L-L)
- **Auxiliary (Dry) contact for load control, excess PV control, and generator two-wire control**: 24 V, 1 A
- **Nominal frequency/range**: 60 Hz/56-63 Hz
- **Frequency measurement accuracy**: ±0.1 Hz
- **Maximum continuous current rating**: 160 A
- **Maximum input overcurrent protection device**: 200 A
- **Maximum output overcurrent protection device**: 200 A
- **Maximum overcurrent protection device rating for generator circuit**: 80 A
- **Maximum overcurrent protection device rating for storage circuit**: 80 A
- **Maximum overcurrent protection device rating for PV combiner circuit**: 80 A
- **Internal busbar rating**: 200 A

**MECHANICAL DATA**

- **Dimensions (W x H x D)**: 50 cm x 91.6 cm x 24.6 cm (19.7 in x 36 in x 9.7 in)
- **Weight**: 39.4 kg (87 lbs)
- **Ambient temperature range**: -40ºC to 50ºC (−40ºF to 122ºF)
- **Cooling**: Natural convection, solar shield
- **Enclosure environmental rating**: Outdoor, NEMA type 3R, polycarbonate construction
- **Maximum altitude**: 2,500 meters (8,200 feet)

**WIRE SIZES**

- **Connections (All lugs are rated to 90ºC)**
  - Main lugs and backup load lugs
  - CSR breaker bottom wiring lugs
  - AC combiner lugs, IQ Battery lugs, and generator lugs
  - Neutral lugs

- **Neutral and ground bars**
  - Large holes (5/16-24 UNF)
  - Small holes (10-32 UNF)

**COMPLIANCE**

- **IQ System Controller 2 is approved for use as service equipment in the United States.**
- **IFETEL homologation number: RCPENEP22-2078.**

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2. Compatible with BRHDK125 hold-down kit to comply with 2017 NEC 710.15E for back-fed circuit breakers.
3. The IQ System Controller 2 is rated at 22 kAIC.
4. CSR breakers are not included in EP200G-SC2-RSD-BRK-KIT. Installer must provide correctly rated breakers.
5. Sections from these standards were used during the safety evaluation and included in the UL1741 listing.
Wiring for systems with IQ8 Microinverters

System Shutdown header
System Shutdown Switch

Butt splice wire connectors
12 AWG wires

Wiring for systems with non-IQ8 Microinverters

System Shutdown header

Butt splice wire connectors
12 AWG wires
Figure 2A: Installing DER breakers for IQ8 System without generator

- **Storage breaker**: Use hold-down kit (EP200G-NA-HD-200A) with included breakers (20 A/40 A/60 A) or a correctly-sized breaker.
- **Solar breaker**: Use hold-down kit (EP200G-NA-HD-200A) with included breakers (20 A/40 A/60 A) or a correctly-sized breaker.
- **Hold-down kit (X-IQ-NA-HD-125A)**
- **Solar branch circuit breaker**: Use hold-down kits (X-IQ-NA-HD-125A) with included 20 A breakers. Each branch circuit requires a separate breaker.
- **Pre-wired red and black wires**: Connect to storage and solar breakers.
- **NFT breaker**: Pre-installed in factory, not to be disturbed.
- **IQ Gateway breaker**: Wire IQ Gateway in IQ Combiner to factory-installed breaker in IQ System Controller 2.

Figure 2B: Installing DER breakers for IQ8 System with generator

- **Storage breaker**: Use hold-down kit (EP200G-NA-HD-200A) with included breakers (20 A/40 A/60 A) or a correctly-sized breaker.
- **Solar breaker**: Use hold-down kit (EP200G-NA-HD-200A) with included breakers (20 A/40 A/60 A) or a correctly-sized breaker.
- **Pre-wired red and black wires**: Connect to storage and solar breakers.
- **NFT and IQ Gateway breaker**: Remove the factory installed NFT breaker and install a Quad breaker (Eaton Part: BQC220240). Wire as shown alongside.
- **Generator breaker**: Use hold-down kit (EP200G-NA-HD-200A) with included breakers (40 A/60 A) or a correctly-sized breaker.
- **Pre-wired red and black wires**: Connect to generator breaker.
## Revision history

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<th>REVISION</th>
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<tr>
<td>DSH-00163-1.0</td>
<td>July 2023</td>
<td>Updated wiring diagram in Figure 2A. Editorial updates.</td>
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Previous releases