

**2.1.1 SITE NOTES:**  
 2.1.2 A LADDER WILL BE IN PLACE FOR INSPECTION IN COMPLIANCE WITH OSHA REGULATIONS.  
 2.1.3 THE PV MODULES ARE CONSIDERED NON-COMBUSTIBLE AND THIS SYSTEM IS A UTILITY INTERACTIVE SYSTEM WITH NO STORAGE BATTERIES.  
 2.1.4 THE SOLAR PV INSTALLATION WILL NOT OBSTRUCT ANY PLUMBING, MECHANICAL, OR BUILDING ROOF VENTS.  
 2.1.5 PROPER ACCESS AND WORKING CLEARANCE AROUND EXISTING AND PROPOSED ELECTRICAL EQUIPMENT WILL BE PROVIDED AS PER SECTION NEC 110.26.  
 2.1.6 ROOF COVERINGS SHALL BE DESIGNED, INSTALLED, AND MAINTAINED IN ACCORDANCE WITH THIS CODE AND THE APPROVED MANUFACTURER'S INSTRUCTIONS SUCH THAT THE ROOF COVERING SERVES TO PROTECT THE BUILDING OR STRUCTURE.

**2.2.1 EQUIPMENT LOCATIONS**  
 2.2.2 ALL EQUIPMENT SHALL MEET MINIMUM SETBACKS AS REQUIRED BY NEC 110.26  
 2.2.3 WIRING SYSTEMS INSTALLED IN DIRECT SUNLIGHT MUST BE RATED FOR EXPECTED OPERATING TEMPERATURE AS SPECIFIED BY NEC 690.31 (A),(C) AND NEC TABLES 310.15 (B)(2)(A) AND 310.15 (B)(3)(C).  
 2.2.3 JUNCTION AND PULL BOXES PERMITTED INSTALLED UNDER PV MODULES ACCORDING TO NEC 690.34.  
 2.2.4 ADDITIONAL AC DISCONNECT(S) SHALL BE PROVIDED WHERE THE INVERTER IS NOT WITHIN SIGHT OF THE AC SERVICING DISCONNECT.  
 2.2.5 ALL EQUIPMENT SHALL BE INSTALLED ACCESSIBLE TO QUALIFIED PERSONNEL ACCORDING TO NEC APPLICABLE CODES.  
 2.2.6 ALL COMPONENTS ARE LISTED FOR THEIR PURPOSE AND RATED FOR OUTDOOR USAGE WHEN APPROPRIATE

**2.3.1 STRUCTURAL NOTES:**  
 2.3.2 RACKING SYSTEM & PV ARRAY WILL BE INSTALLED ACCORDING TO CODE-COMPLIANT INSTALLATION MANUAL. TOP CLAMPS REQUIRE A DESIGNATED SPACE BETWEEN MODULES, AND RAILS MUST ALSO EXTEND A MINIMUM DISTANCE BEYOND EITHER EDGE OF THE ARRAY/SUBARRAY, ACCORDING TO RAIL MANUFACTURER'S INSTRUCTIONS.  
 2.3.3 JUNCTION BOX WILL BE INSTALLED PER MANUFACTURERS' SPECIFICATIONS.  
 IF ROOF-PENETRATING TYPE, IT SHALL BE FLASHED & SEALED PER LOCAL REQUIREMENTS.  
 2.3.4 ROOFTOP PENETRATIONS FOR PV RACEWAY WILL BE COMPLETED AND SEALED W/ APPROVED CHEMICAL SEALANT PER CODE BY A LICENSED CONTRACTOR.  
 2.3.5 ALL PV RELATED ROOF ATTACHMENTS TO BE SPACED NO GREATER THAN THE SPAN DISTANCE SPECIFIED BY THE RACKING MANUFACTURER.  
 2.3.6 WHEN POSSIBLE, ALL PV RELATED RACKING ATTACHMENTS WILL BE STAGGERED AMONGST THE ROOF FRAMING MEMBERS.

**2.4.1 GROUNDING NOTES:**  
 2.4.2 GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE, AND GROUNDING DEVICES EXPOSED TO THE ELEMENTS SHALL BE RATED FOR SUCH USE.  
 2.4.3 AS IN CONVENTIONAL PV SYSTEMS, UNGROUNDED PV SYSTEMS REQUIRE AN EQUIPMENT GROUNDING CONDUCTOR. ALL METAL ELECTRICAL EQUIPMENT AND STRUCTURAL COMPONENTS BONDED TO GROUND, IN ACCORDANCE WITH 250.134 OR 250.136(A). ONLY THE DC CONDUCTORS ARE UNGROUNDED.  
 2.4.4 PV EQUIPMENT SHALL BE GROUNDED ACCORDING TO NEC 690.43 AND MINIMUM NEC TABLE 250.122.  
 2.4.5 METAL PARTS OF MODULE FRAMES, MODULE RACKING, AND ENCLOSURE CONSIDERED GROUNDED IN ACCORD WITH 250.134 AND 250.136(A).  
 2.4.6 EACH MODULE WILL BE GROUNDED USING WEEB GROUNDING CLIPS AS SHOWN IN MANUFACTURER DOCUMENTATION AND APPROVED BY THE AHJ. IF WEEBS ARE NOT USED, MODULE GROUNDING LUGS MUST BE INSTALLED AT THE SPECIFIED GROUNDING LUG HOLES PER THE MANUFACTURERS' INSTALLATION REQUIREMENTS.  
 2.4.7 THE GROUNDING CONNECTION TO A MODULE SHALL BE ARRANGED SUCH THAT THE REMOVAL OF A MODULE DOES NOT INTERRUPT A GROUNDING CONDUCTOR TO ANOTHER MODULE.  
 2.4.8 GROUNDING AND BONDING CONDUCTORS, IF INSULATED, SHALL BE COLORED GREEN OR MARKED GREEN IF #4 AWG OR LARGER [NEC 250.119]  
 2.4.9 THE GROUNDING ELECTRODE SYSTEM COMPLIES WITH NEC 690.47 AND NEC 250.50 THROUGH 250.106. IF EXISTING SYSTEM IS INACCESSIBLE, OR INADEQUATE, A GROUNDING ELECTRODE SYSTEM PROVIDED ACCORDING TO NEC 250, NEC 690.47 AND AHJ.  
 2.4.10 ACCORDING TO NEC 690.47 (C)(3), UNGROUNDED SYSTEMS INVERTER MAY SIZE DC GEC ACCORDING TO EGC REQUIREMENTS OF NEC 250.122. HOWEVER, DC GEC TO BE UNSPLICED OR IRREVERSIBLY SPLICED.  
 2.4.11 IN UNGROUNDED INVERTERS, GROUND FAULT PROTECTION IS PROVIDED BY "ISOLATION MONITOR INTERRUPTOR," AND GROUND FAULT DETECTION PERFORMED BY "RESIDUAL-CURRENT DETECTOR."

**2.7.1 WIRING & CONDUIT NOTES:**  
 2.7.2 ALL CONDUIT AND WIRE WILL BE LISTED AND APPROVED FOR THEIR PURPOSE. CONDUIT AND WIRE SPECIFICATIONS ARE BASED ON MINIMUM CODE REQUIREMENTS AND ARE NOT MEANT TO LIMIT UP-SIZING.  
 2.7.3 ALL CONDUCTORS SIZED ACCORDING TO NEC 690.8, NEC 690.7, 2.7.4 EXPOSED UNGROUNDED PV SOURCE AND OUTPUT CIRCUITS SHALL USE WIRE LISTED AND IDENTIFIED AS PHOTOVOLTAIC (PV) WIRE [690.35 (D)]. PV MODULES WIRE LEADS SHALL BE LISTED FOR USE WITH UNGROUNDED SYSTEMS, ACCORDING TO NEC 690.35 (D)(3).  
 2.7.5 PV WIRE BLACK WIRE MAY BE FIELD-MARKED WHITE [NEC 200.6 (A)(6)].  
 2.7.6 MODULE WIRING SHALL BE LOCATED AND SECURED UNDER THE ARRAY.  
 2.7.7 ACCORDING TO NEC 200.7, UNGROUNDED SYSTEMS DC CONDUCTORS COLORED OR MARKED AS FOLLOWS:  
 DC POSITIVE- RED, OR OTHER COLOR EXCLUDING WHITE, GREY AND GREEN  
 DC NEGATIVE- BLACK, OR OTHER COLOR EXCLUDING WHITE, GREY AND GREEN  
 2.7.8 AC CONDUCTORS COLORED OR MARKED AS FOLLOWS:  
 PHASE A OR L1- BLACK  
 PHASE B OR L2- RED, OR OTHER CONVENTION IF THREE PHASE  
 PHASE C OR L3- BLUE, YELLOW, ORANGE\*, OR OTHER CONVENTION  
 NEUTRAL- WHITE OR GREY  
 \* IN 4-WIRE DELTA CONNECTED SYSTEMS THE PHASE WITH HIGHER VOLTAGE TO BE MARKED ORANGE [NEC 110.15].

**2.5.1 INTERCONNECTION NOTES:**  
 2.5.2 LOAD-SIDE INTERCONNECTION SHALL BE IN ACCORDANCE WITH [NEC 690.64 (B)]  
 2.5.3 THE SUM OF THE UTILITY OCPD AND INVERTER CONTINUOUS INPUT MAY NOT EXCEED 120% OF BUSBAR RATING [NEC 705.12(D)(2)(3)].  
 2.5.4 WHEN SUM OF THE PV SOURCES EQUALS >100% OF BUSBAR RATING, PV DEDICATED BACKFED BREAKERS MUST BE LOCATED OPPOSITE END OF THE BUS FROM THE UTILITY SOURCE OCPD [NEC 705.12(D)(2)(3)].  
 2.5.5 AT MULTIPLE INVERTERS OUTPUT COMBINER PANEL, TOTAL RATING OF ALL OVERCURRENT DEVICES SHALL NOT EXCEED AMPACITY OF BUSBAR. HOWEVER, THE COMBINED OVERCURRENT DEVICE MAY BE EXCLUDED ACCORDING TO NEC 705.12 (D)(2)(3)(C).  
 2.5.6 FEEDER TAP INTERCONNECTION (LOAD SIDE) ACCORDING TO NEC 705.12 (D)(2)(1)  
 2.5.7 SUPPLY SIDE TAP INTERCONNECTION ACCORDING TO NEC 705.12 (A) WITH SERVICE ENTRANCE CONDUCTORS IN ACCORDANCE WITH NEC 230.42  
 2.5.8 BACKFEEDING BREAKER FOR UTILITY-INTERACTIVE INVERTER OUTPUT IS EXEMPT FROM ADDITIONAL FASTENING [NEC 705.12 (D)(5)].

**2.6.1 DISCONNECTION AND OVER-CURRENT PROTECTION NOTES:**  
 2.6.2 DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING ENERGIZED ARE CONNECTED TO THE TERMINALS MARKED "LINE SIDE" (TYPICALLY THE UPPER TERMINALS).  
 2.6.3 DISCONNECTS TO BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH.  
 2.6.4 BOTH POSITIVE AND NEGATIVE PV CONDUCTORS ARE UNGROUNDED. THEREFORE BOTH MUST OPEN WHERE A DISCONNECT IS REQUIRED, ACCORDING TO NEC 690.13.  
 2.6.5 DC DISCONNECT INTEGRATED INTO ROOFTOP DC COMBINER OR INSTALLED WITHIN 6 FT, ACCORDING TO NEC 690.15 (C).  
 2.6.6 RAPID SHUTDOWN OF ENERGIZED CONDUCTORS BEYOND 10 FT OF PV ARRAY OR 5 FT INSIDE A BUILDING WITHIN 10 SECONDS. CONTROLLED CONDUCTORS ≤30V AND ≤240VA [NEC 690.12]. LOCATION OF LABEL ACCORDING TO AHJ.  
 2.6.7 ALL OCPD RATINGS AND TYPES SPECIFIED ACCORDING TO NEC 690.8, 690.9, AND 240.  
 2.6.8 BOTH POSITIVE AND NEGATIVE PV CONDUCTORS ARE UNGROUNDED, THEREFORE BOTH REQUIRE OVER-CURRENT PROTECTION, ACCORDING TO NEC 240.21. (SEE EXCEPTION IN NEC 690.9)  
 2.6.9 IF REQUIRED BY AHJ, SYSTEM WILL INCLUDE ARC-FAULT CIRCUIT PROTECTION ACCORDING TO NEC 690.11 AND UL1699B.

**2.7.1 WIRING & CONDUIT NOTES:**  
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 PHASE A OR L1- BLACK  
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 PHASE C OR L3- BLUE, YELLOW, ORANGE\*, OR OTHER CONVENTION  
 NEUTRAL- WHITE OR GREY  
 \* IN 4-WIRE DELTA CONNECTED SYSTEMS THE PHASE WITH HIGHER VOLTAGE TO BE MARKED ORANGE [NEC 110.15].

## ROOF MOUNT SOLAR PERMIT PACKAGE

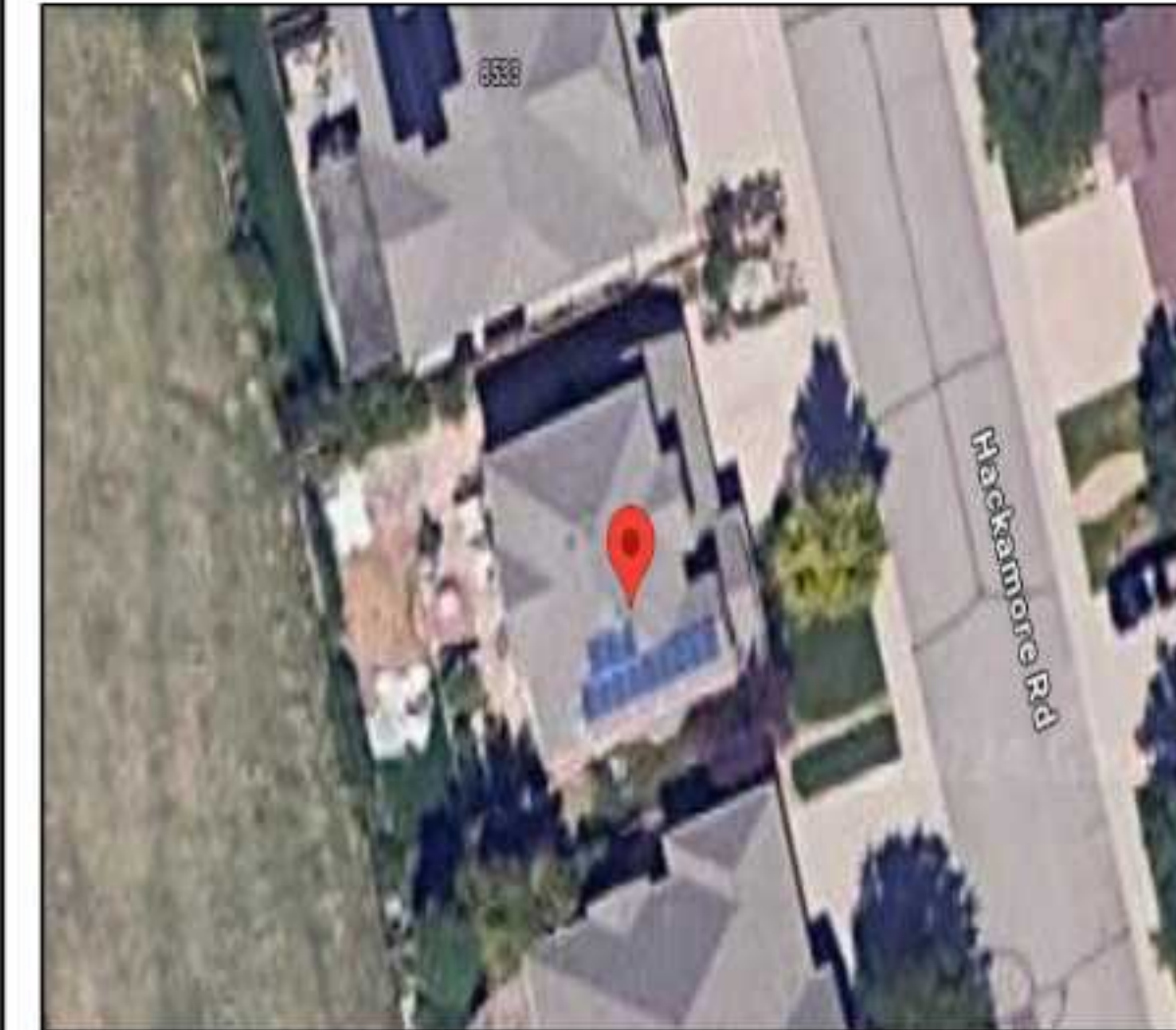
SYSTEM SIZE: 7.96 kW

### General Information

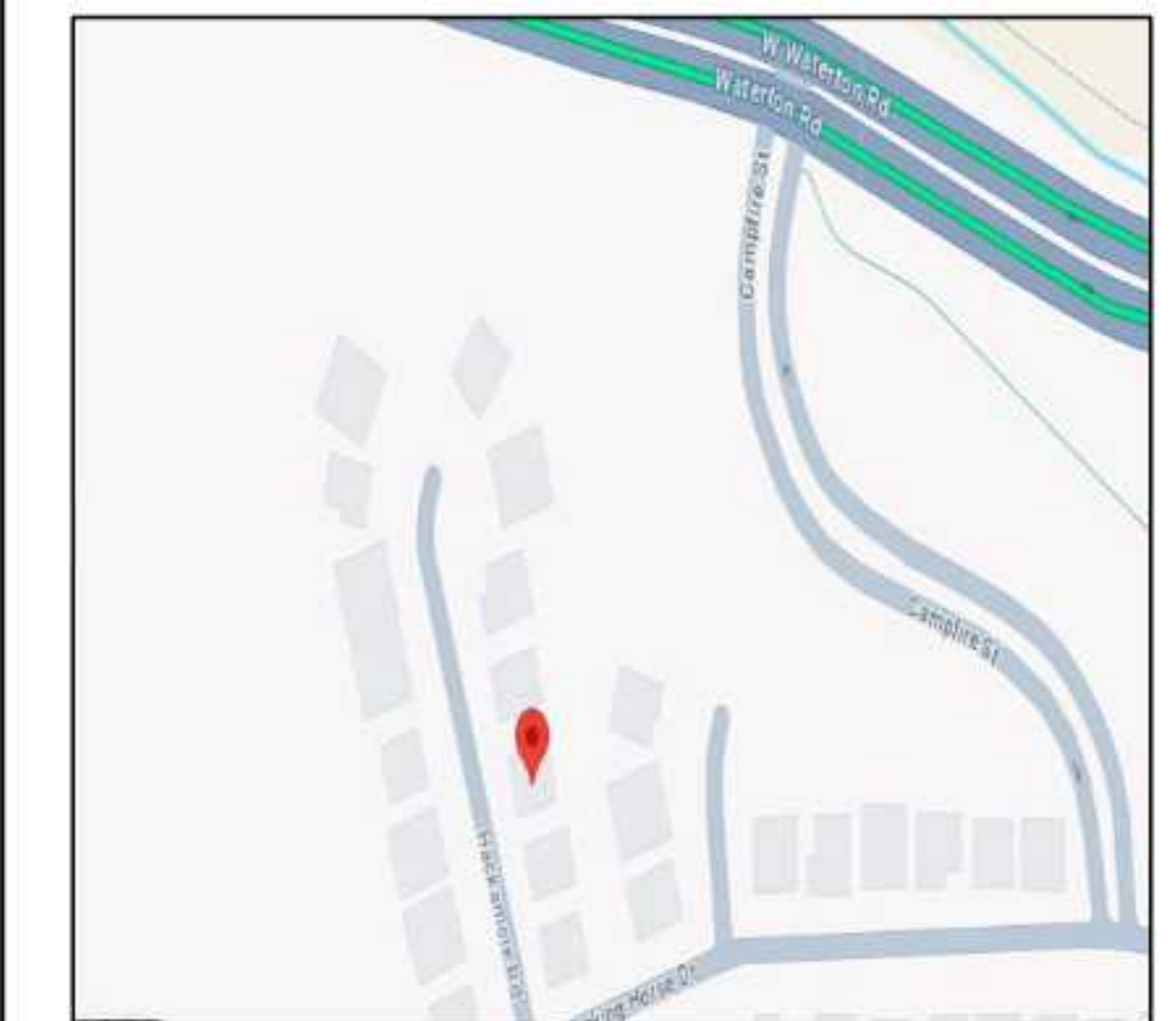
System Size	7.96 kW
Building Type	Residential
Solar Panel	REC470AA Pure-RX
Inverter	Enphase IQ8X-80-M-US

### Sheet Index

Page 01	Cover Sheet
Page 02	Site Plan
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Aerial View



Vicinity Map

Revisions	
S.NO	Description

Contractor Sign

SHEET NAME INDEX PAGE

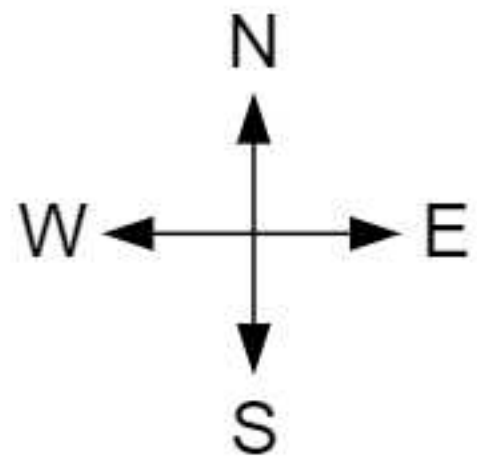
SHEET SIZE A4

SHEET No. 01



Solifier LLC, 5900 Balcones Drive # 17035, Austin Texas USA 78731





(N) Enphase Equipment  
 (E) Utility Meter / Main Combo

**Property Details**

Total Land Area in Sq. ft.: 6,834  
 Total Area in Acreage: 0.16  
 Depth(ft.): 66' 9"  
 Frontage(ft.): 101' 9"  
 Right Setback(ft.): 21  
 Left Setback(ft.): 34  
 Front Setback(ft.): 9  
 Rear Setback(ft.): 8  
 Total Buildings in Property: 01  
 Building Height (Story): 01

Revisions	
S.NO	Descriptoin

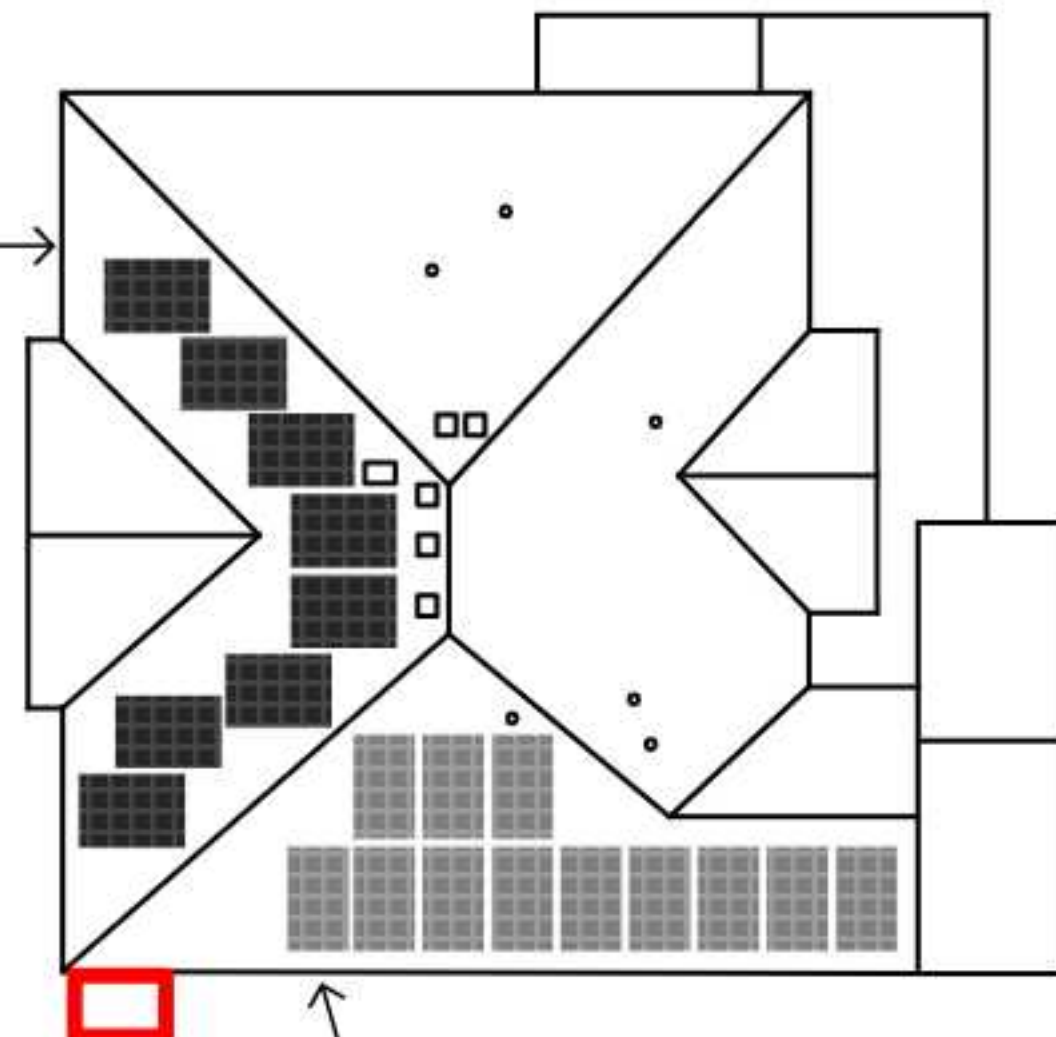
SHEET NAME  
SITE PLAN

SHEET SIZE  
A4

SHEET No.  
02

**ROOF 1:**

(8) REC SOLAR: REC470AA PURE-RX 470W MONO MODULES WITH ENPHASE: IQ8X-80-M-US (240V) MICROINVERTERS W/MC4 CONNECTORS



**EXISTING ROOF:**

(12) LG SOLAR: LG350Q1C-A5 PV MODULES WITH ENPHASE: IQ8PLUS-72-2-US (240V) MICROINVERTES W/MC4 CONNECTORS

Revisions	
S.NO	Descriptoin

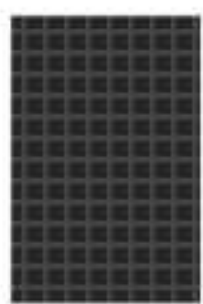
Legend	
	Utility Meter

**System Details:**

- Residential 7.96kW grid tied (photovoltaic) system
- This system has been designed in accordance with all current and applicable NEC, OBC, and RCO codes
- Height of the array: 3-4in above the roof, parallel to the roof
- Weight of the array: Less than 4lbs/ft^2
- Total area of Array: 402 sq. ft.
- Total area of Roof: 2250 sq. ft.
- Roof area covered by Array: 18%
- No fencing or trenching would be needed with this project

Add on Modules

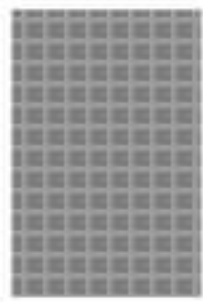
REC SOLAR:  
REC470AA PURE-RX



1728 x 1205 x 30 mm

Existing Modules

LG SOLAR  
LG350Q1C-A5



66.93 x 40.0 x 1.57 in

SHEET NAME  
PV LAYOUT

SHEET SIZE  
A4

SHEET No.  
03

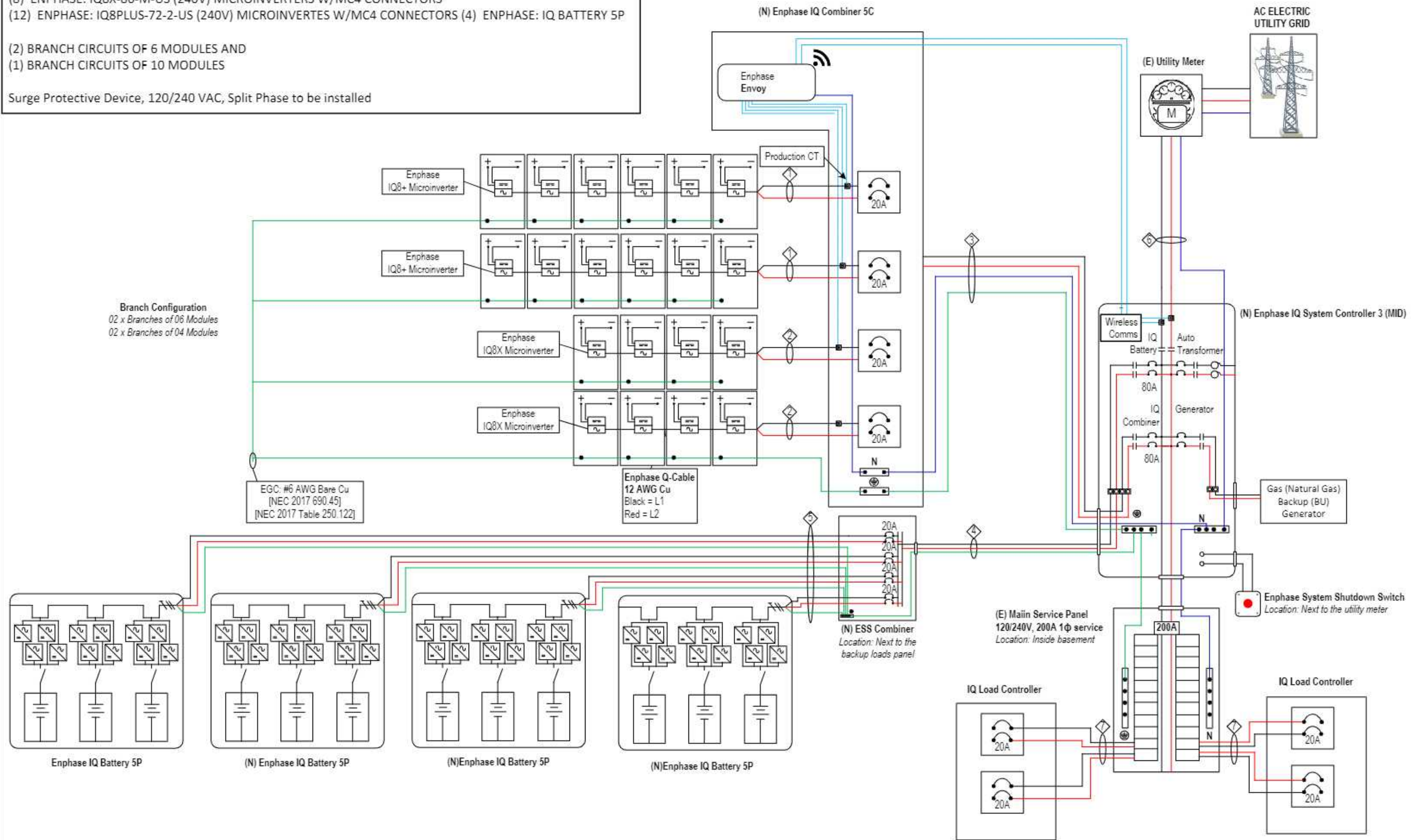


**SYSTEM Details:**  
 DC SYSTEM SIZE: 8 X 470 = 3.760 KW DC (N) + 12 X 350 = 4.200 KW DC (E) = 7.960 KW DC  
 AC SYSTEM SIZE: 8 x 380 + 12 x 290 = 6.520 KW AC

(8) REC SOLAR: REC470AA PURE-RX 470W MONO MODULES  
 (8) ENPHASE: IQ8X-80-M-US (240V) MICROINVERTERS W/MC4 CONNECTORS  
 (12) ENPHASE: IQ8PLUS-72-2-US (240V) MICROINVERTES W/MC4 CONNECTORS (4) ENPHASE: IQ BATTERY 5P

(2) BRANCH CIRCUITS OF 6 MODULES AND  
 (1) BRANCH CIRCUITS OF 10 MODULES

Surge Protective Device, 120/240 VAC, Split Phase to be installed



Revisions	
S.NO	Descriptoin

SHEET NAME  
ELECTRICAL DIAGRAM

SHEET SIZE  
A4

SHEET No.  
04



**Installation Note:**  
 IQ Combiner:  
 1. Cell Modem required for back up operation  
 2. Place Consumption CTs here to monitor loads  
 3. Hold ON Kits for PV Breakers is mandatory for IQ Combiner 4  
 IQ System Controller 3:  
 4. Hold down kit BRHDK125 is needed per NEC 710.15 for PV Breaker for all IQ 8 series Micro inverters family  
 5. ATTENTION: To prevent complication be sure to power down IQ System Controller 2 before connecting the System Shutdown Switch  
 IQ Battery:  
 6. ESS hold down kits may be required on all breakers in the Combiner as per AHJ  
 Generator:  
 7. Hold down kit is required for the Generator breaker  
 8. Place Parallel set of Consumption CTs around generator input

⬠ Voltage = 240 Vac  
 Max AC Output Current =  $(1.21A \times 1.25) \times 06 = 9.1A$   
 Minimum Wire Size: #10 AWG THHN Cu  
 NEC 2017 [Table 310.15 (B)(16)]  
 EGC: #6 AWG THHN Cu [NEC 2017 690.45]  
 [NEC 2017 Table 250.122]

⬠ Voltage = 240 Vac  
 Max AC Output Current =  $(1.58A \times 1.25) \times 04 = 7.9A$   
 Minimum Wire Size: #10 AWG THHN Cu  
 NEC 2017 [Table 310.15 (B)(16)]  
 EGC: #6 AWG THHN Cu [NEC 2017 690.45]  
 [NEC 2017 Table 250.122]

⬠ Voltage = 240 Vac  
 Max AC Output Current = 34A  
 Minimum Wire Size: #10 AWG THHN Cu  
 NEC 2017 [Table 310.15 (B)(16)]  
 EGC: #6 AWG THHN Cu [NEC 2017 690.45]  
 [NEC 2017 Table 250.122]

⬠ Voltage = 240 Vac  
 Max AC Output Current = 80A  
 Minimum Wire Size: #4 AWG THHN Cu  
 NEC 2017 [Table 310.15 (B)(16)]  
 EGC: #6 AWG THHN Cu [NEC 2017 690.45]  
 [NEC 2017 Table 250.122]

⬠ Voltage = 240 Vac  
 Max AC Output Current = 16A  
 Minimum Wire Size: #10 AWG THHN Cu  
 NEC 2017 [Table 310.15 (B)(16)]  
 EGC: #6 AWG THHN Cu [NEC 2017 690.45]  
 [NEC 2017 Table 250.122]

⬠ Minimum Wire Size: #3/0 AWG THHN Cu  
 ⬠ Minimum Wire Size: #10 AWG THHN Cu

**CAUTION:  
 AUTHORIZED SOLAR  
 PERSONNEL ONLY!**

LABEL - 1:  
 LABEL LOCATION:  
 AC DISCONNECT

**WARNING  
 ELECTRIC SHOCK HAZARD  
 TERMINALS ON THE LINE AND LOAD SIDES MAY  
 BE ENERGIZED IN THE OPEN POSITION**

LABEL - 2:  
 LABEL LOCATION:  
 AC DISCONNECT  
 COMBINER  
 MAIN SERVICE PANEL  
 SUBPANEL  
 MAIN SERVICE DISCONNECT  
 CODE REF: NEC 705.20(7) AND NEC 690.13(B)

**WARNING DUAL POWER SOURCE  
 SECOND SOURCE IS PHOTOVOLTAIC SYSTEM**

LABEL - 3:  
 LABEL LOCATION:  
 UTILITY METER  
 MAIN SERVICE PANEL  
 SUBPANEL  
 CODE REF: NEC 705.30(C) & NEC 690.59

**WARNING  
 TURN OFF PHOTOVOLTAIC AC  
 DISCONNECT PRIOR TO  
 WORKING INSIDE PANEL**

LABEL - 4:  
 LABEL LOCATION:  
 MAIN SERVICE PANEL  
 SUBPANEL  
 MAIN SERVICE DISCONNECT  
 COMBINER  
 CODE REF: NEC 110.27(C) & OSHA 1910.145 (f) (7)

**CAUTION  
 PHOTOVOLTAIC SYSTEM CIRCUIT IS  
 BACKFEED**

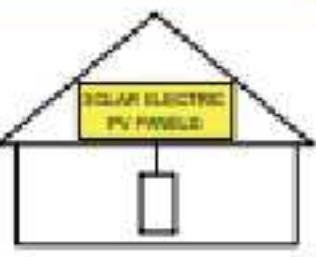
LABEL - 5:  
 LABEL LOCATION:  
 MAIN SERVICE PANEL (ONLY IF SOLAR IS BACK-FED)  
 SUBPANEL (ONLY IF SOLAR IS BACK-FED)  
 CODE REF: NEC 705.30(D) & NEC 690.59

**WARNING  
 POWER SOURCE OUTPUT  
 CONNECTION. DO NOT  
 RELOCATE THIS  
 OVERCURRENT DEVICE**

LABEL - 6:  
 LABEL LOCATION:  
 MAIN SERVICE PANEL (ONLY IF SOLAR IS BACK-FED)  
 SUBPANEL (ONLY IF SOLAR IS BACK-FED)  
 CODE REF: NEC 705.12(B)(3)(2)

**SOLAR PV SYSTEM EQUIPPED  
 WITH RAPID SHUTDOWN**

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY



LABEL - 7:  
 LABEL LOCATION:  
 AC DISCONNECT  
 CODE REF: IFC 605.11.3.1(1) & 690.12(D)

**RAPID SHUTDOWN SWITCH  
 FOR SOLAR PV SYSTEM**

LABEL - 8:  
 LABEL LOCATION:  
 AC DISCONNECT  
 CODE REF: NEC 690.12(D)(2)

**PHOTOVOLTAIC  
 AC DISCONNECT**

LABEL - 9:  
 LABEL LOCATION:  
 AC DISCONNECT  
 CODE REF: NEC 690.13(B)

**PHOTOVOLTAIC  
 AC DISCONNECT**

NOMINAL OPERATING AC VOLTAGE **240 V**  
 RATED AC OUTPUT CURRENT **27.15 A**

LABEL - 10:  
 LABEL LOCATION:  
 MAIN SERVICE PANEL  
 SUBPANEL  
 AC DISCONNECT  
 CODE REF: NEC 690.13(B)

**MAIN PHOTOVOLTAIC  
 SYSTEM DISCONNECT**

LABEL - 11:  
 LABEL LOCATION:  
 MAIN SERVICE DISCONNECT (ONLY IF MAIN SERVICE DISCONNECT IS PRESENT)  
 CODE REF: NEC 690.13(B)

**PV PRODUCTION  
 METER**

LABEL - 11:  
 LABEL LOCATION:  
 PV METER (IF PV PRODUCTION METER IS REQUIRED)

**UTILITY PV AC DISCONNECT**

LABEL - 12:  
 LABEL LOCATION:  
 UTILITY AC DISCONNECT  
 LABEL WILL BE METAL OR PLASTIC

**PHOTOVOLTAIC SYSTEM CONNECTED**

LABEL - 13:  
 LABEL LOCATION:  
 UTILITY METER  
 LABEL WILL BE METAL OR PLASTIC

Revisions	
S.NO	Description
	-

Revisions	
S.NO	Description
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Revisions	
S.NO	Description
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Revisions	
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SHEET NAME  
 NEC LABELS

SHEET SIZE  
 A4

SHEET No.  
 05



SOLAR'S MOST TRUSTED



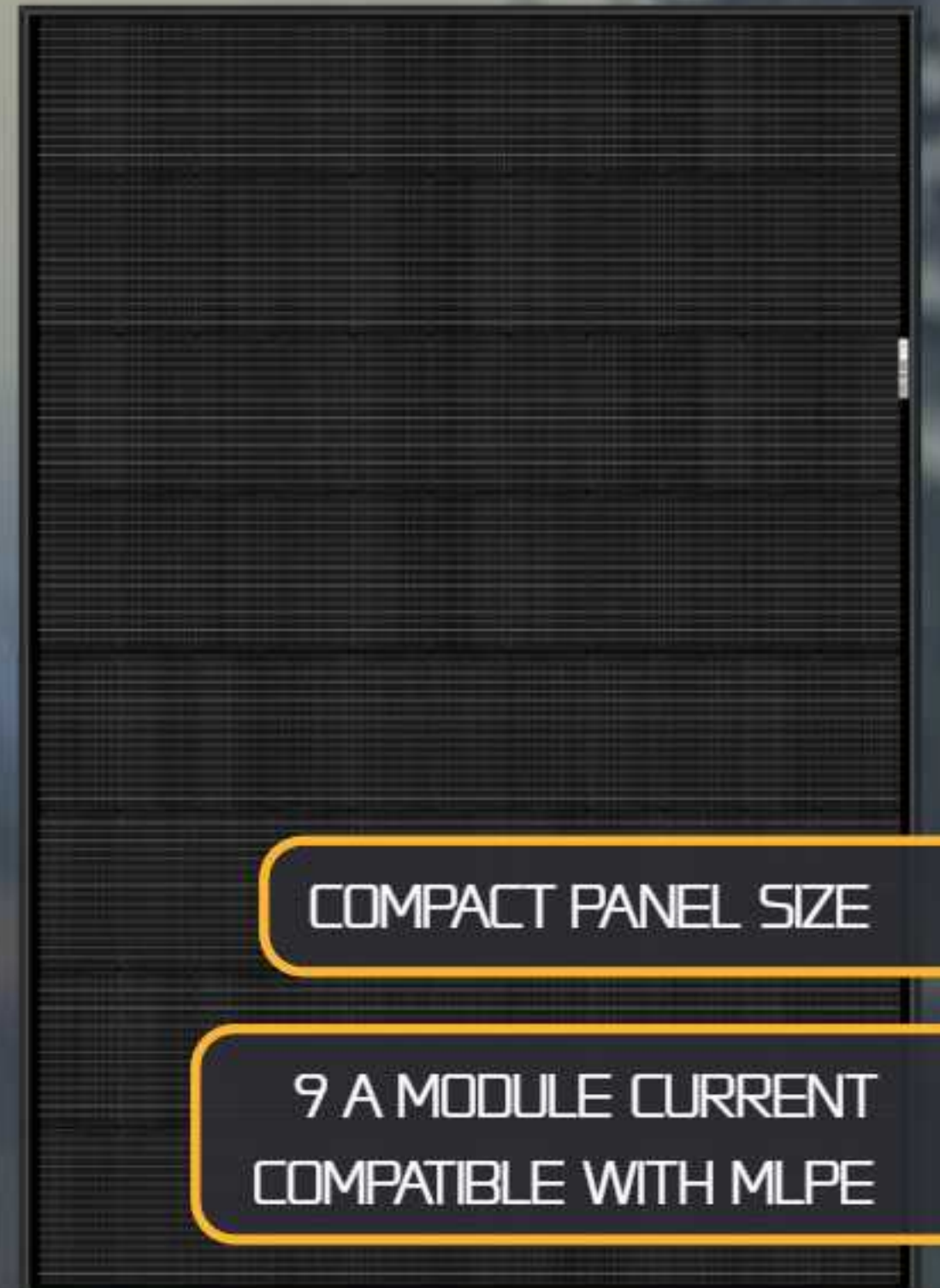
# REC ALPHA<sup>®</sup> PURE-RX SERIES

DATASHEET

470 W<sub>P</sub>

22.6% EFFICIENCY

226 W/M<sup>2</sup>



COMPACT PANEL SIZE

9 A MODULE CURRENT  
COMPATIBLE WITH MLPE



ELIGIBLE



LEAD-FREE  
ROHS COMPLIANT

EXPERIENCE



PERFORMANCE

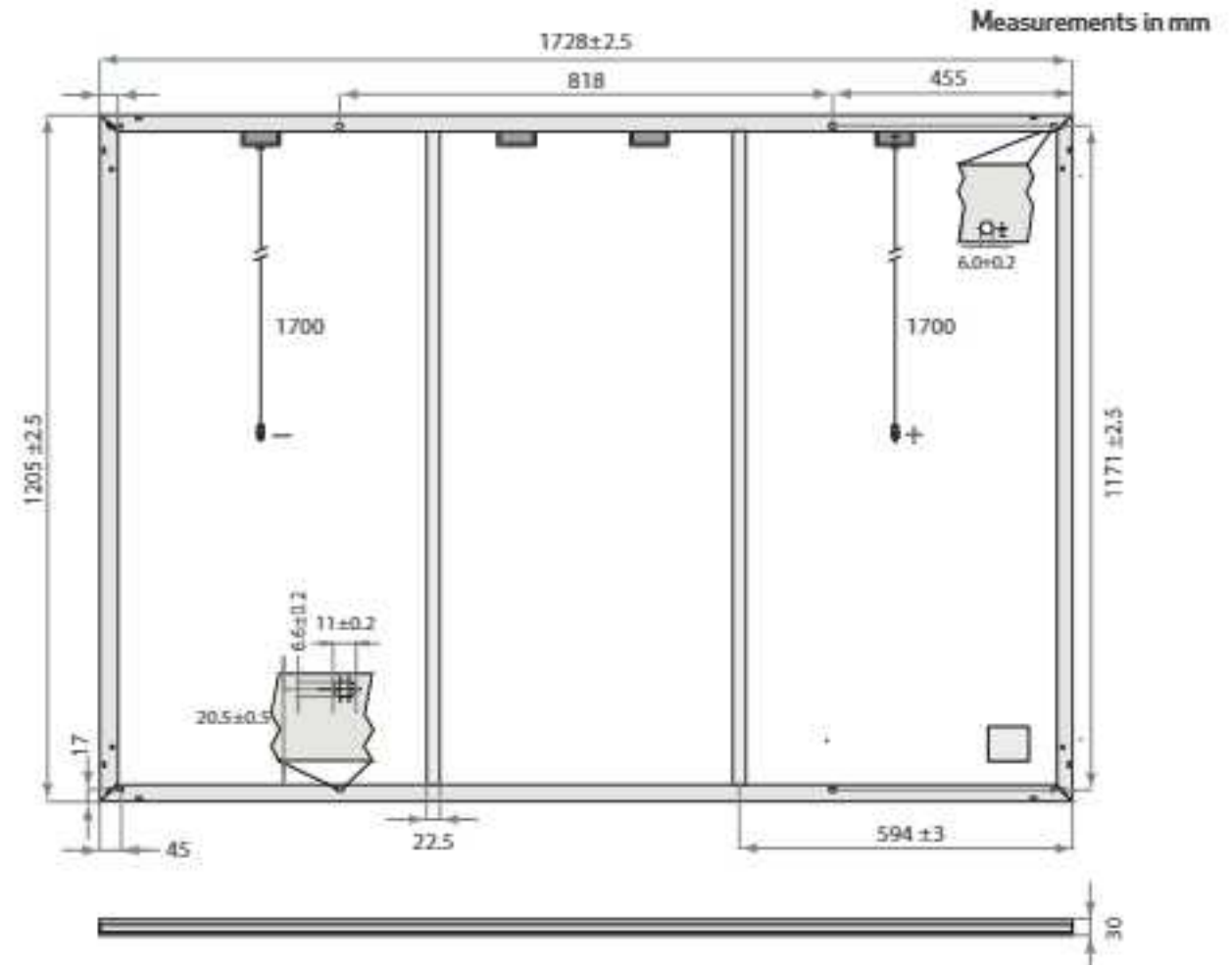


# REC ALPHA<sup>®</sup> PURE-RX SERIES

## DATASHEET

### GENERAL DATA

Cell Type	88 half-cut bifacial REC heterojunction cells, with lead-free, gapless technology
Glass	3.2 mm solar glass with anti-reflective surface treatment in accordance with EN12150
Backsheet	Highly resistant polymer (Black)
Frame	Anodized aluminum (Black)
Junction Box	4-part, 4 bypass diodes, lead-free IP68 rated, in accordance with IEC 62790
Connectors	Stäubli MC4 PV-KBT4/KST4 (4 mm <sup>2</sup> ) in accordance with IEC 62852, IP68 only when connected
Cable	4 mm <sup>2</sup> solar cable, 1.7 m + 1.7 m in accordance with EN50618
Dimensions	1728 x 1205 x 30 mm (2.08 m <sup>2</sup> )
Weight	23.4 kg
Origin	Made in Singapore



### ELECTRICAL DATA

PRODUCT CODE\*: RECxxxAA Pure-RX

	450	455	460	465	470
Power Output - P <sub>MAX</sub> (W <sub>p</sub> )	450	455	460	465	470
Watt Class Sorting - (W)	0/+5W	0/+5W	0/+5W	0/+5W	0/+5W
Nominal Power Voltage - V <sub>MPP</sub> (V)	54.3	54.6	54.9	55.2	55.4
Nominal Power Current - I <sub>MPP</sub> (A)	8.29	8.34	8.38	8.43	8.49
Open Circuit Voltage - V <sub>OC</sub> (V)	65.1	65.2	65.3	65.5	65.6
Short Circuit Current - I <sub>SC</sub> (A)	8.81	8.84	8.88	8.91	8.95
Power Density (W/m <sup>2</sup> )	216	219	221	224	226
Panel Efficiency (%)	21.6	21.9	22.1	22.3	22.6

STC

	343	346	350	354	358
Power Output - P <sub>max</sub> (W <sub>p</sub> )	343	346	350	354	358
Nominal Power Voltage - V <sub>MPP</sub> (V)	51.2	51.4	51.7	52.0	52.2
Nominal Power Current - I <sub>MPP</sub> (A)	6.70	6.73	6.77	6.81	6.86
Open Circuit Voltage - V <sub>OC</sub> (V)	61.3	61.5	61.6	61.7	61.8
Short Circuit Current - I <sub>SC</sub> (A)	7.11	7.14	7.17	7.2	7.23

NMOT

Values at standard test conditions (STC: air mass AM 1.5, irradiance 1000 W/m<sup>2</sup>, temperature 25°C), based on a production spread with a tolerance of P<sub>MAX</sub>, V<sub>OC</sub> & I<sub>SC</sub> +3% within one watt class. Nominal module operating temperature (NMOT: air mass AM 1.5, irradiance 800 W/m<sup>2</sup>, temperature 20°C, windspeed 1 m/s). \*Where xxx indicates the nominal power class (P<sub>MAX</sub>) at STC above.

### MAXIMUM RATINGS

Operational Temperature	-40 °C - 85 °C
System Voltage	1000 V
Maximum Test Load (front)	+7000 Pa (713 kg/m <sup>2</sup> )
Maximum Test Load (rear)	-4000 Pa (407 kg/m <sup>2</sup> )
Max Series Fuse Rating	25 A
Max Reverse Current	25 A

\* See installation manual for mounting instructions.  
Design load = Test load / 1.5 (safety factor)

### TEMPERATURE RATINGS\*

Nominal Module Operating Temperature	44 °C ± 2 °C
Temperature coefficient of P <sub>MAX</sub>	-0.24% / °C
Temperature coefficient of V <sub>OC</sub>	-0.24% / °C
Temperature coefficient of I <sub>SC</sub>	0.04% / °C

\*The temperature coefficients stated are linear values

### DELIVERY INFORMATION

Panels per Pallet	33
Panels per 40 ft GP/high cube container	594 (18 Pallets)
Panels per 13.6 m truck	660 (20 Pallets)

### CERTIFICATIONS

IEC 61215:2021; IEC 61730:2016; UL 61730	
ISO 11925-2	Ignitability (EN 13501-1 Class E)
IEC 62716	Ammonia Resistance
IEC 61701	Salt Mist (SM6)
IEC 61215:2016	Hailstone (35 mm)
UL 61730	Fire Type 2
IEC 62321	Lead-free acc. to RoHS EU 863/2015
ISO 14001; ISO 9001; IEC 45001; IEC 62941	



**Declare.**

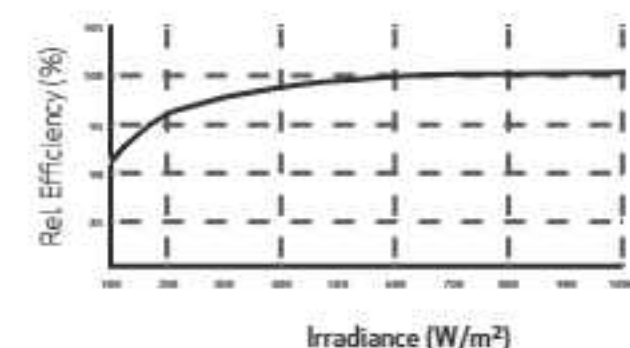
### WARRANTY

	Standard	REC ProTrust	
Installed by an REC Certified Professional	No	Yes	Yes
System Size	All	<25 kW	25-500 kW
Product Warranty (yrs)	20	25	25
Power Warranty (yrs)	25	25	25
Labor Warranty (yrs)	0	25	10
Power in Year 1	98%	98%	98%
Annual Degradation	0.25%	0.25%	0.25%
Power in Year 25	92%	92%	92%

The REC ProTrust Warranty is only available on panels purchased through an REC Certified Solar Professional installer. Warranty conditions apply. See [www.recgroup.com](http://www.recgroup.com) for more details

### LOW LIGHT BEHAVIOUR

Typical low irradiance performance of module at STC:



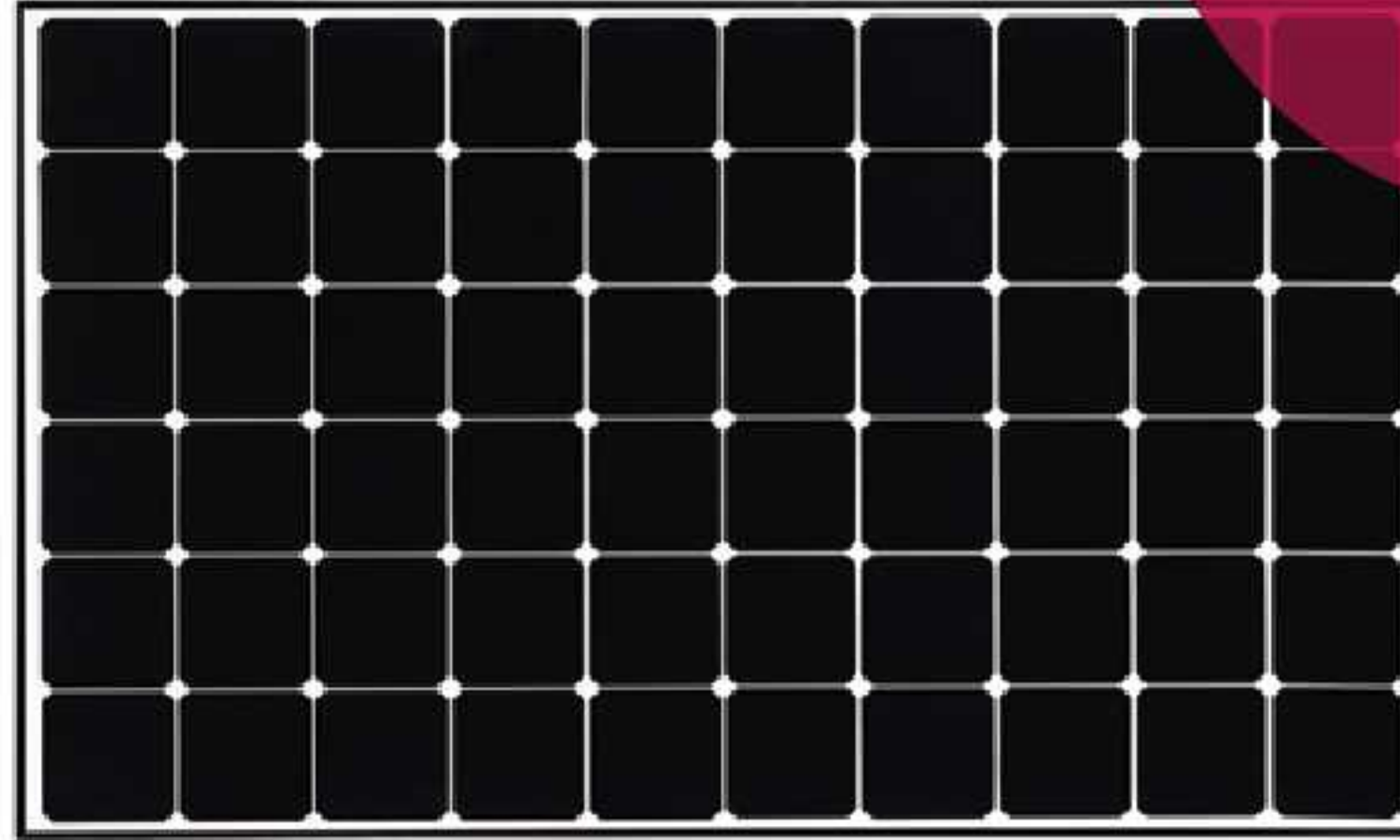
Available from:



Founded in 1996, REC Group is an international pioneering solar energy company dedicated to empowering consumers with clean, affordable solar power. As Solar's Most Trusted, REC is committed to high quality, innovation, and a low carbon footprint in the solar materials and solar panels it manufactures. Headquartered in Norway with operational headquarters in Singapore, REC also has regional hubs in North America, Europe, and Asia-Pacific.

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20 Tuas South Ave. 14  
Singapore 637312  
post@recgroup.com  
www.recgroup.com





# LG NeON<sup>®</sup> R

LG350Q1C-A5

## 60 cell

LG NeON<sup>®</sup> R is new powerful product with global top level performance. Applied new cell structure without electrodes on the front, LG NeON<sup>®</sup> R maximized the utilization of light and enhanced its reliability. LG NeON<sup>®</sup> R demonstrates LG's efforts to increase customer's values beyond efficiency. It features enhanced warranty, durability, performance under real environment, and aesthetic design suitable for roofs.



### Enhanced Warranty

LG now offer 25 years product warranty to accommodate performance warranty as well. LG NeON<sup>®</sup> R has an enhanced performance warranty. After 25 years, LG NeON<sup>®</sup> R is guaranteed at least 87.0% of initial performance.



### High Power Output

The LG NeON<sup>®</sup> R has been designed to significantly enhance its output making it efficient even in limited space.



### Aesthetic Roof

LG NeON<sup>®</sup> R has been designed with aesthetics in mind: no electrode on the front that makes new product more aesthetic. LG NeON<sup>®</sup> R can increase the value of a property with its modern design.



### Outstanding Durability

With its newly reinforced frame design, LG NeON<sup>®</sup> R can endure a front load up to 6000 Pa, and a rear load up to 5400 Pa.



### Better Performance on a Sunny Day

LG NeON<sup>®</sup> R now performs better on a sunny days thanks to its improved temperature coefficient.



### Near Zero LID (Light Induced Degradation)

The n-type cells used in LG NeON<sup>®</sup> R have almost no boron, which may cause the initial performance degradation, leading to less LID.

#### About LG Electronics

LG Electronics is a global player who has been committed to expanding its capacity, based on solar energy business as its future growth engine. We embarked on a solar energy source research program in 1985, supported by LG Group's rich experience in semi-conductor, LCD, chemistry, and materials industry. We successfully released first Mono X<sup>®</sup> series to the market in 2010, which were exported to 32 countries in the following 2 years, thereafter. In 2013, NeON<sup>™</sup> (previously known as Mono X<sup>®</sup> NeON) & 2015 NeON2 with CELLO technology won "Intersolar Award", which proved LG is the leader of innovation in the industry.



### Mechanical Properties

Cells	6 x 10
Cell Vendor	LG
Cell Type	Monocrystalline / N-type
Cell Dimensions	161.7 x 161.7 mm / 6 inches
Dimensions (L x W x H)	1700 x 1016 x 40 mm 66.93 x 40.0 x 1.57 inch
Front Load	6000Pa
Rear Load	5400Pa
Weight	18.5 kg
Connector Type	MC4
Junction Box	IP68 with 3 Bypass Diodes
Length of Cables	1000 mm x 2 ea
Glass	High Transmission Tempered Glass
Frame	Anodized Aluminium

### Certifications and Warranty

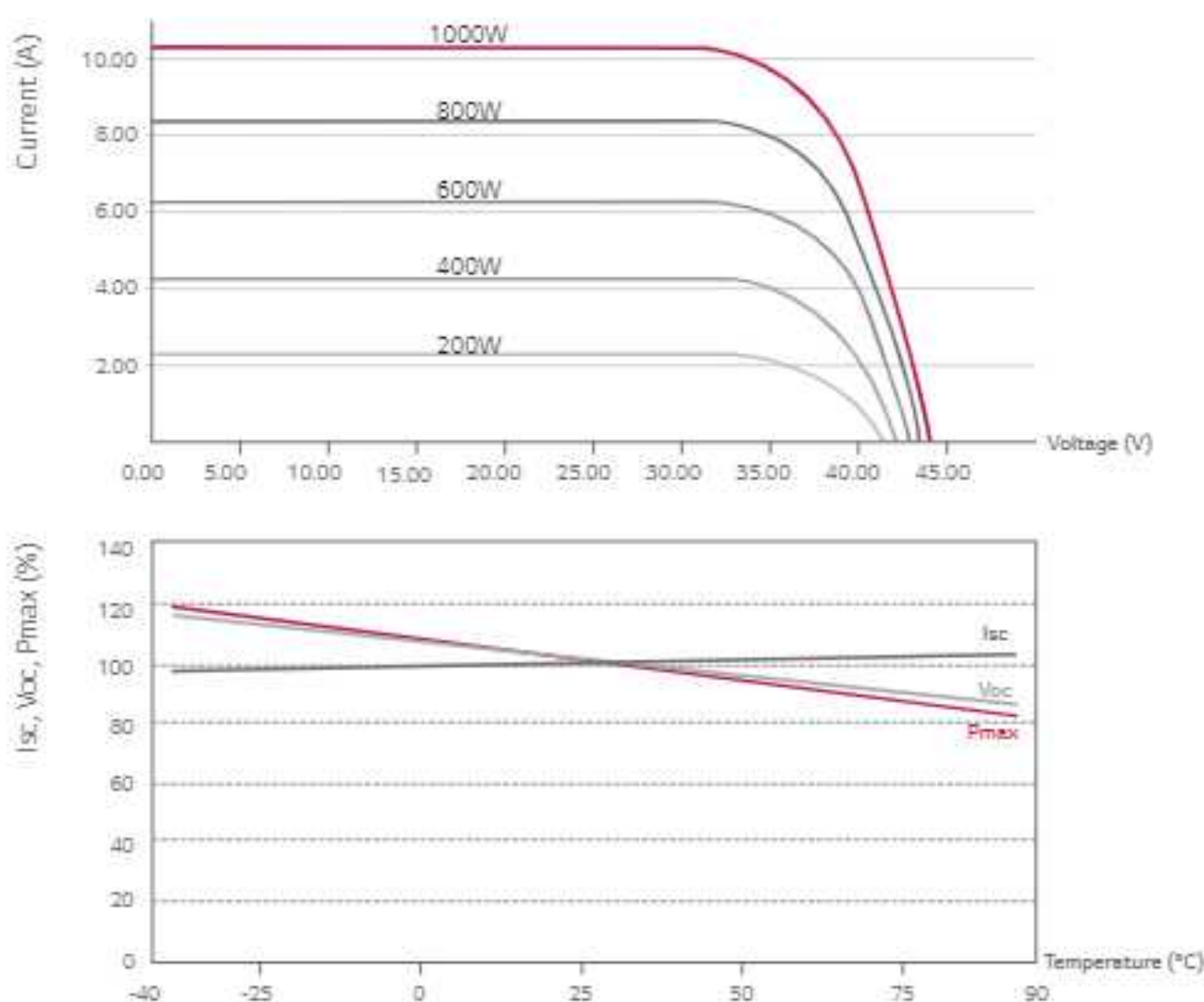
Certifications	IEC 61215, IEC 61730-1/-2 UL 1703 IEC 61701 (Salt mist corrosion test) IEC 62716 (Ammonia corrosion test) ISO 9001
Module Fire Performance (USA)	Type 1
Fire Resistance Class (CANADA)	Class C (ULC / ORD C1703)
Product Warranty	25 years
Output Warranty of Pmax	Linear warranty**

\*\*1) First 5 years : 95%, 2) After 5th year : 0.4% annual degradation, 3) 25 years : 87.0%

### Temperature Characteristics

NOCT	44 ± 3 °C
Pmpp	-0.30 %/°C
Voc	-0.24 %/°C
Isc	0.04 %/°C

### Characteristic Curves



### Electrical Properties (STC \*)

Module	350
Maximum Power (Pmax)	350
MPP Voltage (Vmpp)	36.1
MPP Current (Impp)	9.70
Open Circuit Voltage (Voc)	42.7
Short Circuit Current (Isc)	10.77
Module Efficiency	20.3
Operating Temperature	-40 - +90
Maximum System Voltage	1000
Maximum Series Fuse Rating	20
Power Tolerance (%)	0 - +3

\* STC (Standard Test Condition): Irradiance 1,000 W/m<sup>2</sup>, Ambient Temperature 25 °C, AM 1.5

\* The nameplate power output is measured and determined by LG Electronics at its sole and absolute discretion.

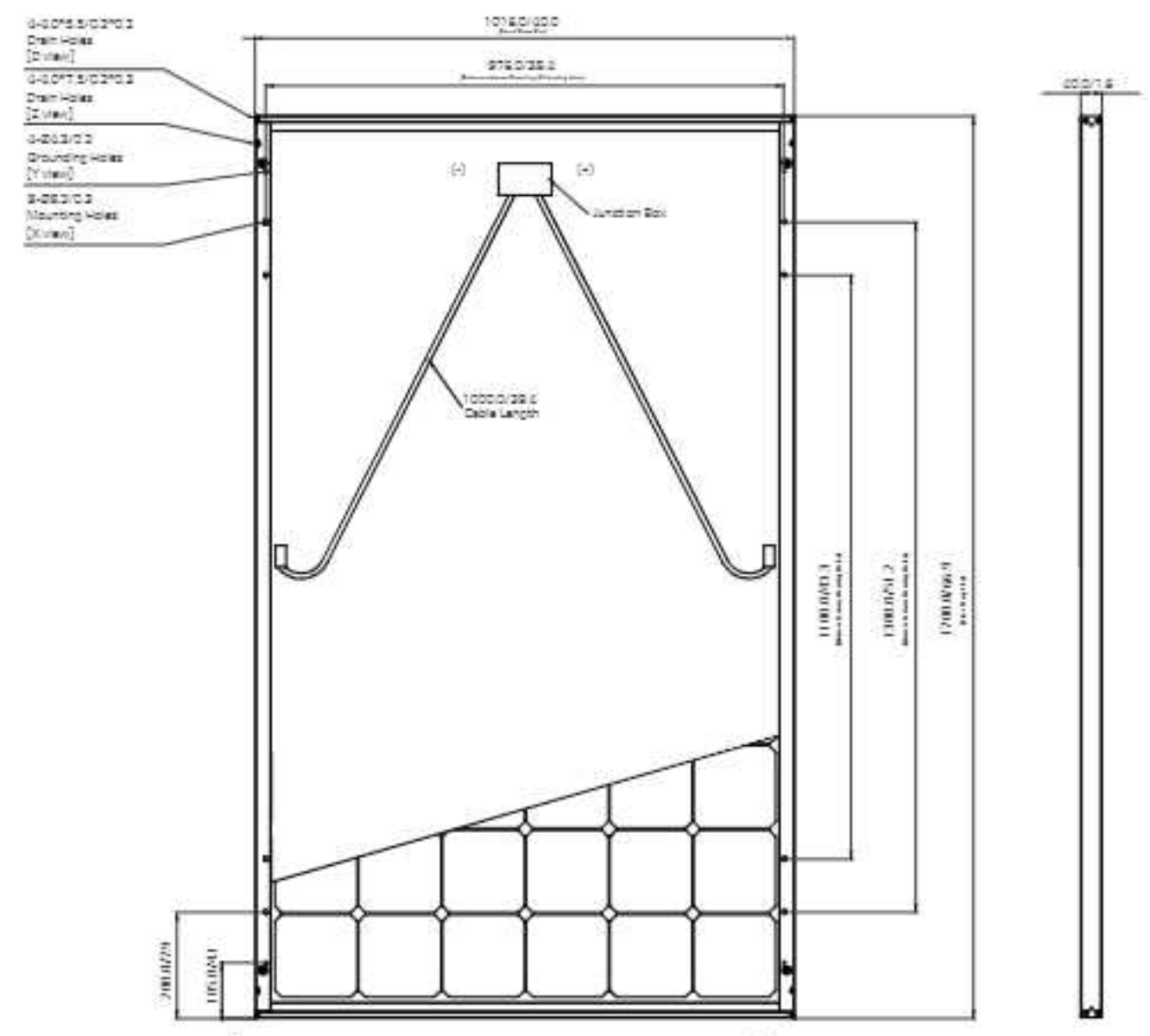
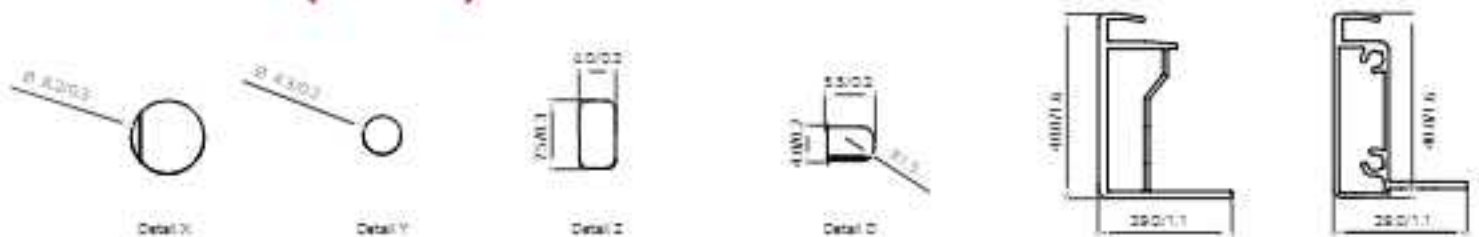
\* The typical change in module efficiency at 200 W/m<sup>2</sup> in relation to 1000 W/m<sup>2</sup> is -2.0%.

### Electrical Properties (NOCT\*)

Module	350
Maximum Power (Pmax)	263
MPP Voltage (Vmpp)	36.0
MPP Current (Impp)	7.32
Open Circuit Voltage (Voc)	40.1
Short Circuit Current (Isc)	8.67

\* NOCT (Nominal Operating Cell Temperature): Irradiance 800 W/m<sup>2</sup>, ambient temperature 20 °C, wind speed 1 m/s

### Dimensions (mm/in)



\* The distance between the center of the mounting/grounding holes.



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 LG Electronics U.S.A. Inc  
 1000 Sylvan Ave, Englewood Cliffs, NJ 07632

Contact: lg.solar@lge.com  
 www.lgsolarusa.com

Product specifications are subject to change without notice.  
 DS-T1-72-W-G-P-EN-60630

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 01/01/2017

Innovation for a Better Life







# IQ8X Microinverter

Our newest IQ8 Series Microinverters are the industry’s first microgrid-forming\*, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application-specific integrated circuit (ASIC), which enables the microinverter to operate in grid-tied or off-grid mode. This chip is built using advanced 55-nm technology with high-speed digital logic and superfast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.

IQ8X Microinverter is the latest addition to this family, designed to support PV modules with high input DC voltage and cell counts, such as 80-half-cut cells, 88-half-cut cells and 96-cells.



Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the IQ Battery, IQ Gateway, and the Enphase App monitoring and analysis software.



IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.



Connect PV modules quickly and easily to the IQ8 Series Microinverters with integrated MC4 connectors.



IQ8 Series Microinverters are UL Listed as PV rapid shutdown equipment and conform with regulations when installed according to the manufacturer’s instructions.

\*Meets UL 1741 only when installed with IQ System Controller 2 and 3.

### Easy to install

- Lightweight and compact with plug-and-play connectors
- Power line communication (PLC) between components
- Faster installation with simple two-wire cabling

### High productivity and reliability

- Produces power even when the grid is down\*
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

### Microgrid-forming

- Complies with the latest advanced grid support
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SA) and IEEE 1547:2018 (UL 1741-SB)

### NOTE:

- IQ8 Series Microinverters cannot be mixed with previous generations of Enphase microinverters (IQ7 Series, IQ6 Series, and so on) in the same system.
- IQ Gateway is required to change the default grid profile at the time of installation to meet local Authority Having Jurisdiction (AHJ) requirements.



# IQ8X Microinverter

INPUT DATA (DC)	UNIT	IQ8X-80-M-US
Commonly used module pairings <sup>1</sup>	W	320–540
Module compatibility	—	To meet compatibility, PV modules must be within the following maximum input DC voltage and maximum module $I_{sc}$ . Module compatibility can be checked at <a href="https://enphase.com/installers/microinverters/calculator">https://enphase.com/installers/microinverters/calculator</a>
MPPT voltage range	V	43–60
Operating range	V	25–79.5
Minimum and maximum start voltage	V	30–79.5
Maximum input DC voltage	V	79.5
Maximum continuous operating DC current	A	10
Maximum input DC short-circuit current	A	16
Maximum module $I_{sc}$	A	13
Overvoltage class DC port	—	II
DC port backfeed current	mA	0
PV array configuration	—	Ungrounded array; no additional DC side protection required; AC side protection requires maximum 20 A per branch circuit

OUTPUT DATA (AC)	UNIT	IQ8X-80-M-US @240 VAC	IQ8X-80-M-US @208 VAC
Peak output power	VA	384	366
Maximum continuous output power	VA	380	360
Nominal grid voltage (L-L)	V	240, split-phase (L-L), 180°	208, single-phase (L-L), 120° <sup>4</sup>
Minimum and maximum grid voltage <sup>2</sup>	V	211–264	183–229
Max. continuous output current	A	1.58	1.73
Nominal frequency	Hz	60	
Extended frequency range	Hz	47–68	
AC short circuit fault current over three cycles	A <sub>rms</sub>	2.70	
Maximum units per 20 A (L-L) branch circuit <sup>3</sup>	—	10	9
Total harmonic distortion	%	<5	
Overvoltage class AC port	—	III	
AC port backfeed current	mA	18	
Power factor setting	—	1.0	
Grid-tied power factor (adjustable)	—	0.85 leading ... 0.85 lagging	
Peak efficiency	%	97.3	97.0
CEC weighted efficiency	%	96.5	96.5
Nighttime power consumption	mW	26	12

MECHANICAL DATA	
Ambient temperature range	-40°C to 65°C (-40°F to 149°F)
Relative humidity range	4% to 100% (condensing)
DC connector type	Stäubli MC4
Dimensions (H × W × D); Weight	212 mm (8.3") × 175 mm (6.9") × 30.2 mm (1.2"); 1.1 kg (2.43 lbs)
Cooling	Natural convection – no fans
Approved for wet locations; Pollution degree	Yes; PD3
Enclosure	Class II double-insulated, corrosion-resistant polymeric enclosure
Environmental category; UV exposure rating	NEMA Type 6; outdoor

COMPLIANCE	
Certifications	CA Rule 21 (UL 1741-SA), UL 62109-1, IEEE 1547:2018 (UL 1741-SB), FCC Part 15 Class B, ICES-0003 Class B, CAN/CSA-C22.2 NO. 107.1-01 This product is UL Listed as PV rapid shutdown equipment and conforms with NEC 2014, NEC 2017, NEC 2020, and NEC 2023 section 690.12 and C22.1-2018 Rule 64-218 rapid shutdown of PV systems for AC and DC conductors when installed according to the manufacturer's instructions.

(1) No enforced DC/AC ratio.

(2) Nominal voltage range can be extended beyond nominal if required by the utility.

(3) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.

(4) IQ8X is not certified for use with Enphase Three Phase Network Protection Relay (NPR-3P-208-NA) and therefore designed for single-phase operation only. Check with the local utility requirements if you wish to install single phase inverter across three phases.



# Revision history

REVISION	DATE	DESCRIPTION
DSH-00185-2.0	November 2023	Preliminary release - public.
DSH-00185-1.0	October 2023	Preliminary release.





# IQ8 and IQ8+ Microinverters

Our newest IQ8 Microinverters are the industry’s first microgrid-forming, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently. The brain of the semiconductor-based microinverter is our proprietary application-specific integrated circuit (ASIC) which enables the microinverter to operate in grid-tied or off-grid modes. This chip is built in advanced 55nm technology with high speed digital logic and has super-fast response times to changing loads and grid events, alleviating constraints on battery sizing for home energy systems.



Part of the Enphase Energy System, IQ8 Series Microinverters integrate with the Enphase IQ Battery, Enphase IQ Gateway, and the Enphase App monitoring and analysis software.



IQ8 Series Microinverters redefine reliability standards with more than one million cumulative hours of power-on testing, enabling an industry-leading limited warranty of up to 25 years.



Connect PV modules quickly and easily to the IQ8 Series Microinverters that has Integrated MC4 connectors.



IQ8 Series Microinverters are UL Listed as PV Rapid Shut Down Equipment and conform with various regulations, when installed according to manufacturer’s instructions.

## Easy to install

- Lightweight and compact with plug-n-play connectors
- Power Line Communication (PLC) between components
- Faster installation with simple two-wire cabling

## High productivity and reliability

- Produce power even when the grid is down\*
- More than one million cumulative hours of testing
- Class II double-insulated enclosure
- Optimized for the latest high-powered PV modules

## Microgrid-forming

- Complies with the latest advanced grid support\*\*
- Remote automatic updates for the latest grid requirements
- Configurable to support a wide range of grid profiles
- Meets CA Rule 21 (UL 1741-SB) requirements

\* Only when installed with IQ System Controller 2, meets UL 1741.

\*\* IQ8 and IQ8Plus support split phase, 240V installations only.



# IQ8 and IQ8+ Microinverters

INPUT DATA (DC)		IQ8-60-M-US	IQ8PLUS-72-M-US
Commonly used module pairings <sup>1</sup>	W	235 – 350	235 – 440
Module compatibility		60-cell / 120 half-cell	60-cell / 120 half-cell, 66-cell / 132 half-cell and 72-cell / 144 half-cell
MPPT voltage range	V	27 – 37	29 – 45
Operating range	V	25 – 48	25 – 58
Min / Max start voltage	V	30 / 48	30 / 58
Max input DC voltage	V	50	60
Max DC current <sup>2</sup> [module I <sub>sc</sub> ]	A		15
Overvoltage class DC port			II
DC port backfeed current	mA		0
PV array configuration		1 x 1 Ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit	
OUTPUT DATA (AC)		IQ8-60-M-US	IQ8PLUS-72-M-US
Peak output power	VA	245	300
Max continuous output power	VA	240	290
Nominal (L-L) voltage / range <sup>3</sup>	V	240 / 211 – 264	
Max continuous output current	A	1.0	1.21
Nominal frequency	Hz	60	
Extended frequency range	Hz	50 – 68	
AC short circuit fault current over 3 cycles	Arms	2	
Max units per 20 A (L-L) branch circuit <sup>4</sup>		16	13
Total harmonic distortion		<5%	
Overvoltage class AC port		III	
AC port backfeed current	mA	30	
Power factor setting		1.0	
Grid-tied power factor (adjustable)		0.85 leading – 0.85 lagging	
Peak efficiency	%	97.5	97.6
CEC weighted efficiency	%	97	97
Night-time power consumption	mW	60	
MECHANICAL DATA			
Ambient temperature range		-40°C to +60°C (-40°F to +140°F)	
Relative humidity range		4% to 100% (condensing)	
DC Connector type		Stäubli MC4	
Dimensions (H x W x D)		212 mm (8.3") x 175 mm (6.9") x 30.2 mm (1.2")	
Weight		1.1 kg (2.43 lbs)	
Cooling		Natural convection – no fans	
Approved for wet locations		Yes	
Pollution degree		PD3	
Enclosure		Class II double-insulated, corrosion resistant polymeric enclosure	
Environ. category / UV exposure rating		NEMA Type 6 / outdoor	
COMPLIANCE			
Certifications		CA Rule 21 (UL 1741-SB), UL 62109-1, UL1741 / IEEE1547, FCC Part 15 Class B, ICES-0003 Class B, CAN / CSA-C22.2 NO. 107.1-01  This product is UL Listed as PV Rapid Shut Down Equipment and conforms with NEC 2014, NEC 2017, and NEC 2020 section 690.12 and C22.1-2018 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors, when installed according to manufacturer's instructions.	

(1) No enforced DC/AC ratio. See the compatibility calculator at <https://link.enphase.com/module-compatibility>.

(2) Maximum continuous input DC current is 10.6A. (3) Nominal voltage range can be extended beyond nominal if required by the utility. (4) Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.





X-IQ-AM1-240-5  
X-IQ-AM1-240-5C

# IQ Combiner 5/5C

The IQ Combiner 5/5C consolidates interconnection equipment into a single enclosure and streamlines IQ Series Microinverters and IQ Gateway installation by providing a consistent, pre-wired solution for residential applications. IQ Combiner 5/5C uses wired control communication and is compatible with IQ System Controller 3/3G and IQ Battery 5P.

The IQ Combiner 5/5C, IQ Series Microinverters, IQ System Controller 3/3G, and IQ Battery 5P provide a complete grid-agnostic Enphase Energy System.



**IQ Series Microinverters**  
The high-powered smart grid-ready IQ Series Microinverters (IQ6, IQ7, and IQ8 Series) simplify the installation process.



**IQ System Controller 3/3G**  
Provides microgrid interconnection device (MID) functionality by automatically detecting grid failures and seamlessly transitioning the home energy system from grid power to backup power.



**IQ Battery 5P**  
Fully integrated AC battery system. Includes six field-replaceable IQ8D-BAT Microinverters.



**IQ Load Controller**  
Helps prioritize essential appliances during a grid outage to optimize energy consumption and prolong battery life.



5-year limited warranty



### Smart

- Includes IQ Gateway for communication and control
- Includes Enphase Mobile Connect (CELLMODEM-M1-06-SP-05), only with IQ Combiner 5C
- Supports flexible networking: Wi-Fi, Ethernet, or cellular
- Provides production metering (revenue grade) and consumption monitoring

### Easy to install

- Mounts to one stud with centered brackets
- Supports bottom, back, and side conduit entries
- Supports up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80 A total PV branch circuits
- Bluetooth-based Wi-Fi provisioning for easy Wi-Fi setup

### Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- 5-year limited warranty
- 2-year labor reimbursement program coverage included for both the IQ Combiner SKUs\*
- UL1741 Listed

\*For country-specific warranty information, see the <https://enphase.com/installers/resources/warranty> page.



# IQ Combiner 5/5C

MODEL NUMBER	
IQ Combiner 5 (X-IQ-AM1-240-5)	IQ Combiner 5 with IQ Gateway printed circuit board for integrated revenue-grade PV production metering (ANSI C12.20 ±0.5%), consumption monitoring (±2.5%), and IQ Battery monitoring (±2.5%). Includes a silver solar shield to deflect heat.
IQ Combiner 5C (X-IQ-AM1-240-5C)	IQ Combiner 5C with IQ Gateway printed circuit board for integrated revenue-grade PV production metering (ANSI C12.20 ±0.5%), consumption monitoring (±2.5%) and IQ Battery monitoring (±2.5%). Includes Enphase Mobile Connect cellular modem (CELLMODEM-M1-06-SP-05) <sup>1</sup> . Includes a silver solar shield to deflect heat.
WHAT'S IN THE BOX	
IQ Gateway printed circuit board	IQ Gateway is the platform for total energy management for comprehensive, remote maintenance, and management of the Enphase Energy System
Busbar	80 A busbar with support for one IQ Gateway breaker and four 20 A breaker for installing IQ Series Microinverters and IQ Battery 5P
IQ Gateway breaker	Circuit breaker, 2-pole, 10 A/15 A
Production CT	Pre-wired revenue-grade solid-core CT, accurate up to ±0.5%
Consumption CT	Two consumption metering clamp CTs, shipped with the box, accurate up to ±2.5%
IQ Battery CT	One battery metering clamp CT, shipped with the box, accurate up to ±2.5%
CTRL board	Control board for wired communication with IQ System Controller 3/3G and the IQ Battery 5P
Enphase Mobile Connect (only with IQ Combiner 5C)	4G-based LTE-M1 cellular modem (CELLMODEM-M1-06-SP-05) with a 5-year T-Mobile data plan
Accessories kit	Spare control headers for the COMMS-KIT-02 board
ACCESSORIES AND REPLACEMENT PARTS (NOT INCLUDED, ORDER SEPARATELY)	
CELLMODEM-M1-06-SP-05	4G-based LTE-M1 cellular modem with a 5-year T-Mobile data plan
CELLMODEM-M1-06-AT-05	4G-based LTE-M1 cellular modem with a 5-year AT&T data plan
Circuit breakers (off-the-shelf)	Supports Eaton BR2XX, Siemens Q2XX and GE/ABB THQL21XX Series circuit breakers (XX represents 10, 15, 20, 30, 40, 50, or 60). Also supports Eaton BR220B, BR230B, and BR240B circuit breakers compatible with the hold-down kit.
Circuit breakers (provided by Enphase)	BRK-10A-2-240V, BRK-15A-2-240V, BRK-20A-2P-240V, BRK-15A-2P-240V-B, and BRK-20A-2P-240V-B (more details in the "Accessories" section)
XA-SOLARSHIELD-ES	Replacement solar shield for IQ Combiner 5/5C
XA-ENV2-PCBA-5	IQ Gateway replacement printed circuit board (PCB) for IQ Combiner 5/5C
X-IQ-NA-HD-125A	Hold-down kit compatible with Eaton BR-B Series circuit breakers (with screws)
XA-COMMS2-PCBA-5	Replacement COMMS-KIT-02 printed circuit board (PCB) for IQ Combiner 5/5C
ELECTRICAL SPECIFICATIONS	
Rating	80 A
System voltage and frequency	120/240 VAC, 60 Hz
Busbar rating	125 A
Fault current rating	10 kAIC
Maximum continuous current rating (input from PV/storage)	64 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR, Siemens Q, or GE/ABB THQL Series distributed generation (DG) breakers only (not included)
Maximum total branch circuit breaker rating (input)	80 A of distributed generation/95 A with IQ Gateway breaker included
IQ Gateway breaker	10 A or 15 A rating GE/Siemens/Eaton included
Production metering CT	200 A solid core pre-installed and wired to IQ Gateway
Consumption monitoring CT (CT-200-CLAMP)	A pair of 200 A clamp-style current transformers is included with the box
IQ Battery metering CT	200 A clamp-style current transformer for IQ Battery metering, included with the box

<sup>1</sup> A plug-and-play industrial-grade cell modem for systems of up to 60 microinverters. Available in the United States, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.



MECHANICAL DATA		
Dimensions (W × H × D)	37.5 cm × 49.5 cm × 16.8 cm (14.75" × 19.5" × 6.63"). Height is 53.5 cm (21.06") with mounting brackets.	
Weight	7.5 kg (16.5 lb)	
Ambient temperature range	-40°C to 46°C (-40°F to 115°F)	
Cooling	Natural convection, plus heat shield	
Enclosure environmental rating	Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction	
Wire sizes	<ul style="list-style-type: none"> <li>• 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors</li> <li>• 60 A breaker branch input: 4 to 1/0 AWG copper conductors</li> <li>• Main lug combined output: 10 to 2/0 AWG copper conductors</li> <li>• Neutral and ground: 14 to 1/0 copper conductors</li> <li>• Always follow local code requirements for conductor sizing</li> </ul>	
Communication (in-premise connectivity)	Built-in CTRL board for wired communication with the IQ Battery 5P and the IQ System Controller 3/3G. Integrated power line communication for IQ Series Microinverters.	
Altitude	Up to 2,600 meters (8,530 feet)	
COMMUNICATION INTERFACES		
Integrated Wi-Fi	802.11b/g/n (dual band 2.4 GHz/5 GHz) for connecting the Enphase Cloud through the internet.	
Wi-Fi range (recommended)	10 m (32.8 feet)	
Bluetooth	BLE4.2, 10 m range to configure Wi-Fi SSID	
Ethernet	Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included) for connecting to the Enphase Cloud through the internet.	
Cellular/Mobile Connect	CELLMODEM-M1-06-SP-05 or CELLMODEM-M1-06-AT-05 (included with the IQ Combiner 5C)	
Digital I/O	Digital input/output for grid operator control	
USB 2.0	Mobile Connect, COMMS-KIT-01 for IQ Battery 3/3T/10/10T, COMMS-KIT-02 for IQ Battery 5P	
Access point (AP) mode	For connection between the IQ Gateway and a mobile device running the Enphase Installer App	
Metering ports	Up to two Consumption CTs, one IQ Battery CT, and one Production CT	
Power line communication	90–110 kHz	
Web API	See <a href="https://developer-v4.enphase.com">https://developer-v4.enphase.com</a>	
Local API	See Guide for local API at <a href="https://enphase.com/download/accessing-iq-gateway-local-apis-or-local-ui-token-based-authentication">https://enphase.com/download/accessing-iq-gateway-local-apis-or-local-ui-token-based-authentication</a>	
COMPLIANCE		
IQ Combiner with IQ Gateway	UL 1741, CAN/CSA C22.2 No. 107.1, Title 47 CFR, Part 15, Class B, ICES 003, NOM-208-SCFI-2016, UL 60601-1/CANCSA 22.2 No. 61010-1, IEEE 1547: 2018 (UL 1741-SB, 3rd Ed.), IEEE 2030.5/CSIP Compliant, Production metering: ANSI C12.20 accuracy class 0.5 (PV production)	
COMPATIBILITY		
PV	Microinverters	IQ6, IQ7, and IQ8 Series Microinverters
COMMS-KIT-01 <sup>2</sup>	IQ System Controller	EP200G101-M240US00
	IQ System Controller 2	EP200G101-M240US01
	IQ Battery	ENCHARGE-3-1P-NA, ENCHARGE-10-1P-NA, ENCHARGE-3T-1P-NA, ENCHARGE-10T-1P-NA
COMMS-KIT-02 <sup>3</sup>	IQ System Controller 3	SC200D111C240US01, SC200G111C240US01
	IQ Battery	IQBATTERY-5P-1P-NA

<sup>2</sup> For information about IQ Combiner 5/5C compatibility with the 2<sup>nd</sup>-generation batteries, refer to the compatibility matrix at <https://enphase.com/download/compatibility-matrix>.

<sup>3</sup> IQ Combiner 5/5C comes pre-equipped with COMMS-KIT-02.



# Accessories



## Mobile Connect

4G-based LTE-M1 cellular modem with a 5-year data plan  
(CELLMODEM-M1-06-SP-05 for Sprint and  
CELLMODEM-M1-06-AT-05 for AT&T)

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## Circuit breakers

BRK-10A-2-240V Circuit breaker, 2-pole, 10 A, Eaton BR210  
BRK-15A-2-240V Circuit breaker, 2-pole, 15 A, Eaton BR215  
BRK-20A-2P-240V Circuit breaker, 2-pole, 20 A, Eaton BR220  
BRK-15A-2P-240V-B Circuit breaker, 2-pole, 15 A, Eaton BR215B  
with hold-down kit support  
BRK-20A-2P-240V-B Circuit breaker, 2-pole, 20 A, Eaton  
BR220B with hold-down kit support

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## CT-200-SOLID

200 A revenue-grade solid core Production CT  
with <0.5% error rate (replacement SKU)

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## CT-200-CLAMP

200 A clamp-style consumption and battery  
metering CT with <2.5% error rate (replacement  
SKU)

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# Revision history

REVISION	DATE	DESCRIPTION
DSH-00007-4.0	June 2024	Updated the UL smart mark.
DSH-00007-3.0	March 2024	Updated accessories and replacement parts, communication interfaces, and compatibility specifications.
DSH-00007-2.0	September 2023	Included Bluetooth specifications.
DSH-00007-1.0	May 2023	Initial release.



# IQ Battery 5P

The IQ Battery 5P all-in-one AC-coupled system is powerful, reliable, simple, and safe. It has a total usable energy capacity of 5.0 kWh and includes six embedded grid-forming microinverters with a 3.84 kVA continuous power rating. It provides backup capability, and installers can quickly design the right system size to meet the customer needs.



## IQ BATTERY 5P SPECIFICATIONS

Rated (continuous) output power	3.84 kVA
Rated output current (@240 VAC)	16 A
Interconnection	Single-phase
Nominal voltage	240 VAC
Nominal frequency	60 Hz
Usable capacity	5.0 kWh
Ambient operating temperature range (charging)	-20°C to 50°C (-4°F to 122°F) non-condensing
Ambient operating temperature range (discharging)	-20°C to 55°C (-4°F to 131°F) non-condensing
Chemistry	Lithium iron phosphate (LFP)
Mounting	Wall-mount or pedestal-mount (sold separately)

### ⚡ Powerful

- Provides 3.84 kVA continuous and 7.68 kVA peak power
- Doubles the available power per kWh of prior generations of IQ Battery
- Includes six embedded microinverters

### ✓ Reliable

- 15-year limited warranty
- Cools passively with no moving parts or fans
- Uses wired communication for fast and consistent connection
- Updates software and firmware remotely

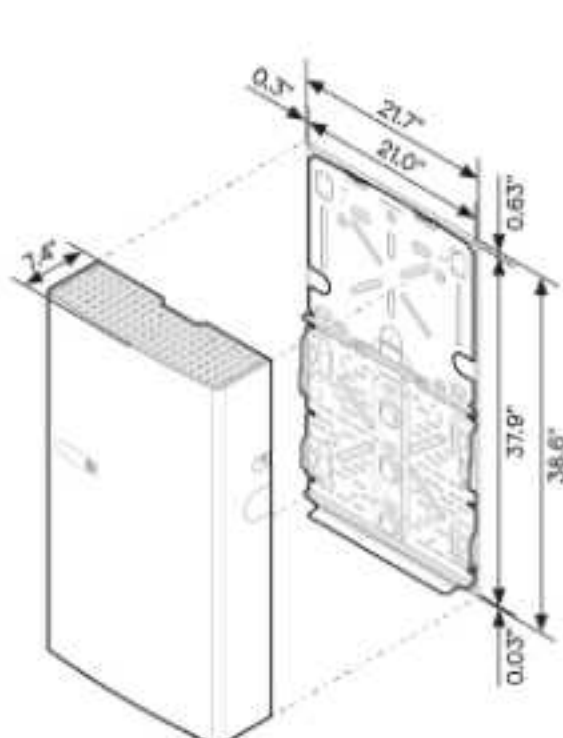
### 🛡️ Simple

- Fully integrated AC battery system
- Installs and commissions easily
- Supports Backup, Self-Consumption, and time-of-use (TOU) modes
- Offers homeowners remote monitoring and control from the Enphase App
- Field replaceable components

### 🛡️ Safe

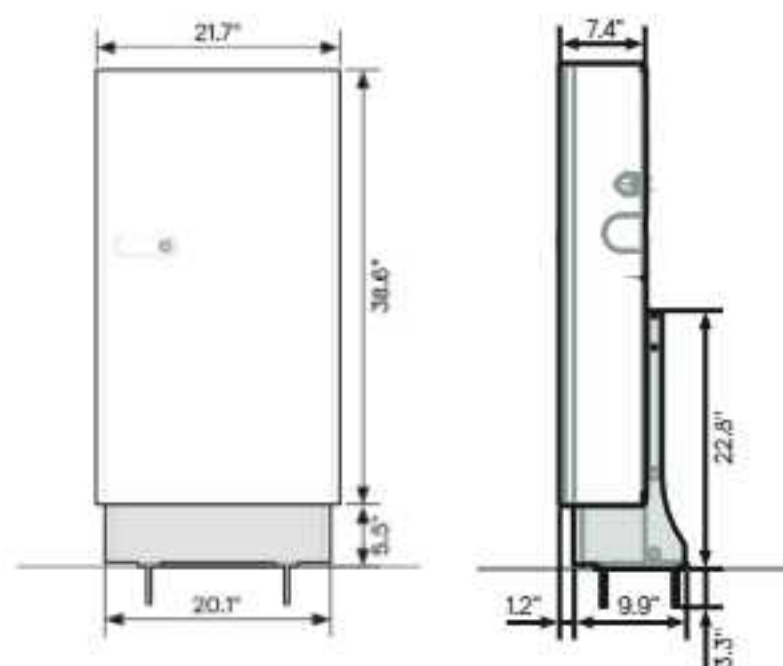
- Evaluated to UL 9540A for thermal runaway fire propagation and reduced separation distance as required in 2021 IRC R328.3.1, 2021 IFC 1207.1.5, and 2023 NFPA 855 15.3.1 and 9.1.5.<sup>1</sup>
- Uses lithium iron phosphate (LFP) chemistry for maximum safety and longevity

Wall-mounted



Dimensions in inches

Floor-mounted with pedestal



<sup>1</sup>Follow all installation instructions and local codes and requirements of the Authority Having Jurisdiction (AHJ) when installing the Enphase Energy System.



<b>MODEL NUMBER</b>	
IQBATTERY-5P-1P-NA	The IQ Battery 5P system with integrated IQ Microinverters (SKU: IQ8D-BAT) and battery management system (BMS) with battery controller
<b>LIMITED WARRANTY</b>	
IQ Battery 5P unit	>60% capacity, up to 15-year or 6,000 cycles <sup>2</sup>
<b>OUTPUT (AC)</b>	
	<b>@240 VAC<sup>3</sup></b>
Rated (continuous) output power	3.84 kVA
Peak output power	7.68 kVA (three seconds), 6.14 kVA (ten seconds)
Nominal voltage/range	240/211–264 VAC
Nominal frequency/range	60/57–63 Hz
Rated output current (@240 VAC)	16 A
Peak output current (@240 VAC)	32 A (three seconds), 25.6 A (ten seconds)
Power Start capability	Up to 48 A LRA <sup>4</sup>
Power factor (adjustable)	0.85 leading ... 0.85 lagging
Maximum units per 20 A branch circuit	One unit (single-phase)
Maximum conductor size supported	3 AWG
Overcurrent protection device (OCPD) for 3 AWG cable	80 A
Interconnection	Single-phase
AC round-trip efficiency <sup>5</sup>	90%
<b>BATTERY</b>	
Total capacity	5.0 kWh
Usable capacity	5.0 kWh
DC round-trip efficiency	96%
Nominal DC voltage	76.8 V
Maximum DC voltage	86.4 V
Ambient operating temperature range (charging)	-20°C to 50°C (-4°F to 122°F) non-condensing
Ambient operating temperature range (discharging)	-20°C to 55°C (-4°F to 131°F) non-condensing
Optimum operating temperature range	0°C to 30°C (32°F to 86°F)
Chemistry	Lithium iron phosphate (LFP)
<b>MECHANICAL DATA</b>	
Dimensions (H x W x D)	980 mm x 550 mm x 188 mm (38.6 in x 21.7 in x 7.4 in)
Lifting weight	66.3 kg (146.1 lb)
Total installed weight	78.9 kg (174 lb)
Enclosure	Outdoor-NEMA 3R
IQ8D-BAT Microinverter enclosure	NEMA type 6
Cooling	Natural convection
Altitude	Up to 2,500 meters (8,202 feet)
Mounting	Wall-mount or pedestal-mount (sold separately)

<sup>2</sup> Whichever occurs first. Restrictions apply.

<sup>3</sup> Supported in both grid-connected and backup/off-grid operations.

<sup>4</sup> Power Start capability may vary.

<sup>5</sup> AC to the battery to AC at 50% power rating.



## FEATURES AND COMPLIANCE

Compatibility	Compatible with IQ and M Series Microinverters, IQ System Controller 3/3G, IQ Combiner 5/5C, and IQ Gateway for grid-tied and backup operation
Communication	Wired control communication
Services	Backup, Self-Consumption, TOU, and NEM integrity
Monitoring	Enphase Installer Platform and Enphase App monitoring options; API integration
Compliance	CA Rule 21 (UL 1741-SA), IEEE 1547:2018 (UL 1741-SB, 3rd Ed.) CAN/CSA C22.2 No. 107.1-16 UL 9540 <sup>6</sup> , UL 9540A, UN 38.3, UL 1998, UL 991, NEMA Type 3R, AC156 EMI: 47 CFR, Part 15, Class B, ICES 003 Cell module: UL 1973, UN 38.3 Inverters: UL 62109-1, IEC 62109-2

## WHAT'S IN THE BOX

IQ Battery 5P unit	IQ Battery 5P unit (B05-T02-US00-1-3)
ID cover and conduit cover	IQ Battery 5P cover with two conduit covers for the left and right sides of the unit
Bottom mounting bracket and top shield	Bottom mounting bracket for mounting the battery on the wall. One top shield is required for UL 9540A
M5 seismic screws	Two M5 seismic screws for securing the battery unit on the bottom mounting bracket
M4 grounding screws	Two M4 grounding screws for securing the top shield on the bottom mounting bracket
M5 ID cover grounding screws	Two M5 ID cover grounding screws for the EMI/EMC requirement
Cable ties	Six cable ties for securing field cables to the unit
Control (CTRL) connector	Spare CTRL connector without resistor for CTRL wiring
Control (CTRL) connector with resistor	Spare CTRL connector with resistor for CTRL wiring
Quick install guide (QIG)	QIG for IQ Battery unit installation instructions

## OPTIONAL ACCESSORIES AND REPLACEMENT PARTS

IQ8D-BAT-RMA	IQ8D-BAT Microinverter for field replacement
B05-T02-US00-1-3-RMA	IQ Battery 5P Battery unit for field replacement
B05-CX-0550-O	IQ Battery 5P cover for field replacement
B05-PI-0550-O	IQ Battery 5P pedestal mount
B05-CP-096-O	IQ Battery 5P conduit plates for field replacement. Includes one left-side and one right-side conduit plate
B05-WB-0543-O	IQ Battery 5P wall bracket for field replacement. Includes one bottom mounting bracket and one top shield
IQBATTERY-HNDL-5	IQ Battery 5P lifting handles. Includes one left-side and one right-side lifting handle
B05-ACFB-080-O	IQ Battery 5P AC filter board for field replacement
B05-BMSNA-0490-O	IQ Battery 5P BMS board for field replacement
B05-CANB-063-O	IQ Battery 5P control communication board for field replacement
B05-NICS-0524-O, B05-NUCS-0524-O	IQ Battery 5P control switch is preinstalled on the wiring cover for field replacement

<sup>6</sup> Following local standards, choose a well-ventilated, non-habitable indoor location (like a 2-car garage) or an outdoor location where the ambient temperature and humidity are within -4°F to 131°F (-20°C to 55°C) and 5% to 95% RH, non-condensing. Avoid direct sunlight to ensure the temperature stays in the optimal operating range. This ensures charging and discharging currents are not de-rated due to temperature. The full performance will occur within 59°F to 113°F (15°C to 45°C) while charging and within 41°F to 122°F (5°C to 50°C) while discharging.



# Components of the Enphase Energy System



## IQ Microinverters

IQ Series Microinverters pack more power into less space than other rooftop solar systems and make rooftop solar more productive, reliable, smart, and safe.



## IQ Gateway

The IQ Gateway with Current Transformers provides complete control and insight into the Enphase Energy System.



## Communications Kit 2 INT

The Communications Kit 2 INT enables wired communication between the battery and gateway for grid-tied operation.



## IQ Battery 5P accessories

The IQ Battery 5P lifting handles are reusable and ease the installation process. The IQ Battery 5P pedestal enables floor mounting of the IQ Battery 5P.



# Revision history

REVISION	DATE	DESCRIPTION
DSH-00010-6.0	May 2024	<ul style="list-style-type: none"><li>• Updated safety section on page 1.</li><li>• Updated the document to a new template.</li></ul>
DSH-00010-5.0	February 2024	Updated the SKU on page 1.
DSH-00010-4.0	November 2023	Updated the “Output (AC)” table.
DSH-00010-3.0	September 2023	<ul style="list-style-type: none"><li>• Updated product images.</li><li>• Editorial updates.</li></ul>
DSH-00010-2.0	July 2023	<ul style="list-style-type: none"><li>• Added battery isometric view on the first page.</li><li>• Editorial updates.</li></ul>
DSH-00010-1.0	May 2023	Initial release.





# IQ System Controller 3/3G

The Enphase IQ System Controller 3/3G 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.



**IQ Series Microinverters**  
The high-powered smart grid-ready IQ Series Microinverters (M Series, IQ6, IQ7, and IQ8 Series) dramatically simplify the installation process.



**IQ Battery 5P**  
Fully integrated AC battery system. Includes six field-replaceable IQ8D-BAT microinverters.



**IQ Combiner 5/5C**  
Consolidates PV interconnection equipment into a single enclosure and streamlines IQ Series Microinverters and IQ Gateway installation by providing a consistent, pre-wired solution for residential applications.



**IQ Load Controller**  
Helps prioritize essential appliances during a grid outage to optimize energy consumption and prolong battery life.

## Easy to install

- Connects to service entrance<sup>1</sup> or main load center
- Includes neutral-forming transformer
- Mounts on single stud with centered brackets
- Provides conduit entry from the bottom, left, or right
- Includes color-coded wires for ease of wiring the System Shutdown Switch
- Integrates hold-down functionality to eliminate the need for hold-down kits and special breakers

## Flexible

- Can be used for Sunlight Backup, Home Essentials Backup, or Full Energy Independence
- IQ System Controller 3 integrates with IQ Battery 5P
- IQ System Controller 3G integrates with select AC standby generators. See the Generator integration with Enphase Energy System tech brief at: <https://enphase.com/installers/resources/documentation/storage> for a list of generators
- Provides a seamless transition to backup

## Safe and reliable

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



10-year limited warranty



IQ System Controller 3



IQ System Controller 3G

<sup>1</sup> IQ System Controller 3 is not suitable for use as service equipment in Canada.



# IQ System Controller 3/3G

MODEL NUMBER	DESCRIPTION
SC200D111C240US01	IQ System Controller 3 streamlines the grid-independent capabilities of PV and storage installations. Integrates hold-down capability. Supports IQ Battery 5P units up to 40 kWh (without PCS*) and 80 kWh (with PCS*). <b>Does not support generator integration</b>
SC200G111C240US01	IQ System Controller 3G streamlines the grid-independent capabilities of PV and storage installations. Integrates hold-down capability. Supports IQ Battery 5P units up to 20 kWh (without PCS*) and 40 kWh (with PCS*). <b>Supports generator integration</b>
WHAT'S IN THE BOX	
IQ System Controller 3/3G	Includes neutral-forming transformer (NFT) and microgrid interconnect device (MID)
System Shutdown Switch	Includes pre-wired red, black, orange, and purple 12 AWG wire (EP200G-NA-02-RSD)
Wall-mounting bracket	Screws provided in the accessories kit for mounting
4-pole circuit breaker	Pre-installed quad breaker (BRK-20A40A-4P-240V), 20 A-40 A, 10 kAIC, Eaton BQC220240 <sup>2</sup>
Accessories kit	IQ System Controller 3/3G literature kit, including labels, CTRL headers, screws, filler plates, and Quick Install Guide (QIG) (EP200G-LITKIT)
OPTIONAL ACCESSORIES AND REPLACEMENT PARTS	
CT-200-SPLIT	200 A split-core current transformers for metering (accuracy: $\pm 2.5\%$ ) <sup>3</sup>
CT-200-CLAMP	200 A clamp-type current transformers for metering (accuracy: $\pm 2.5\%$ ) <sup>3</sup>
Main or load circuit breakers (order separately, as needed) <sup>4</sup>	<ul style="list-style-type: none"> <li>BRK-100A-2P-240V: 2-pole, 100A, 25kAIC, CSR2100N or CSR2100</li> <li>BRK-125A-2P-240V: 2-pole, 125A, 25kAIC, CSR2125N</li> <li>BRK-150A-2P-240V: 2-pole, 150A, 25kAIC, CSR2150N</li> <li>BRK-175A-2P-240V: 2-pole, 175A, 25kAIC, CSR2175N</li> <li>BRK-200A-2P-240V: 2-pole, 200A, 25kAIC, CSR2200N</li> </ul>
Distributed energy resource (DER) circuit breakers (order separately, as needed) <sup>5</sup>	<ul style="list-style-type: none"> <li>BRK-20A-2P-240V-B: 2-pole, 20 A, 10 kAIC, BR220B/BR220</li> <li>BRK-30A-2P-240V-B: 2-pole, 30 A, 10 kAIC, BR230</li> <li>BRK-40A-2P-240V-B: 2-pole, 40 A, 10 kAIC, BR240B/BR240</li> <li>BRK-60A-2P-240V: 2-pole, 60 A, 10 kAIC, BR260</li> <li>BRK-80A-2P-240V: 2-pole, 80 A, 10 kAIC, BR280</li> </ul>
EP200G-HNDL-R1	IQ System Controller 3/3G installation handle kit (order separately)
CTRL-SC3-NA-01	Control cable, 500 ft. spool (order separately)
BRK-20A40A-4P-240V	2-Pole 20 A, 2-Pole 40 A, 10kAIC, Quad Breaker BQC220240 <sup>6</sup>
ALTERNATE DER CIRCUIT BREAKERS	
GE/ABB	THQL21xx (20/40/60/80 A)
Siemens	Q2xx (20/40/60/80 A)
Siemens (quad breaker)	Q24020CT2 (20/40 A)
ELECTRICAL SPECIFICATIONS	
Nominal voltage/Range (L-L)	240 V <sup>7</sup> $\sim$ $\pm 20\%$
Voltage measurement accuracy	$\pm 1\%$ V nominal ( $\pm 1.2$ V L-N and $\pm 2.4$ V 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	$\pm 0.1$ 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 (IQ System Controller 3G only - SC200G111C240US01)

<sup>2</sup> Factory-installed quad breaker (Siemens or Eaton). NFT pre-wired to 40 A terminal of the quad breaker.

<sup>3</sup> Two units of CT-200-SPLIT or CT-200-CLAMP must be bought separately for generator integration.

<sup>4</sup> The IQ System Controller 3 is rated at 22 kAIC.

<sup>5</sup> Integrated hold-down kit support breakers (BR230/BR230/BR240) without predrilled hole.

The integrated hold-down kit also supports GE/ABB and Siemens as mentioned in the "Alternate DER circuit breakers" section.

<sup>6</sup> Figures 1A and 1B show Siemens or Eaton factory-installed quad breakers with NFT pre-wired to 40 A.

<sup>7</sup> "~" indicates alternating current (AC) supply.

\* Power control system.



ELECTRICAL SPECIFICATIONS									
Maximum overcurrent protection device rating for storage circuit	2 × 80 A (IQ System Controller 3 - SC200D11C240US01) 1 × 80 A (IQ System Controller 3G - SC200G11C240US01)								
Maximum overcurrent protection device rating for PV combiner unit	80 A								
Internal busbar rating	200 A								
Neutral-forming transformer (NFT)	<ul style="list-style-type: none"> <li>• Breaker rating (pre-installed): 40 A between L1 and Neutral; 40 A between L2 and Neutral</li> <li>• Continuous rated power: 3,600 VA</li> <li>• Maximum continuous unbalance current: 30 A @ 120 V</li> <li>• Peak unbalanced current: 80 A @ 120 V for two seconds</li> </ul>								
MECHANICAL DATA									
Dimensions (W × H × D)	50 cm × 91.6 cm × 24.6 cm (19.7 in × 36 in × 9.7 in)								
Weight	39.4 kg (87 lb)								
Ambient temperature range	-40°C to 50°C (-40°F to 122°F)								
Cooling	Natural convection and a heat shield								
Enclosure environmental rating	Outdoor, NEMA type 3R, polycarbonate construction								
Maximum altitude	2,500 m (8,200 ft)								
WIRE SIZES									
Connections (All lugs are rated to 90°C)	<table border="0"> <tr> <td>Main lugs and backup load lugs</td> <td>Cu/Al: 6 AWG–300 kcmil</td> </tr> <tr> <td>CSR breaker bottom wiring lugs</td> <td>Cu/Al: 2 AWG–300 kcmil</td> </tr> <tr> <td>AC combiner lugs, IQ Battery lugs, and generator lugs</td> <td>14 AWG–2 AWG</td> </tr> <tr> <td>Neutral (large lugs)</td> <td>Cu/Al: 6 AWG–300 kcmil</td> </tr> </table>	Main lugs and backup load lugs	Cu/Al: 6 AWG–300 kcmil	CSR breaker bottom wiring lugs	Cu/Al: 2 AWG–300 kcmil	AC combiner lugs, IQ Battery lugs, and generator lugs	14 AWG–2 AWG	Neutral (large lugs)	Cu/Al: 6 AWG–300 kcmil
Main lugs and backup load lugs	Cu/Al: 6 AWG–300 kcmil								
CSR breaker bottom wiring lugs	Cu/Al: 2 AWG–300 kcmil								
AC combiner lugs, IQ Battery lugs, and generator lugs	14 AWG–2 AWG								
Neutral (large lugs)	Cu/Al: 6 AWG–300 kcmil								
Neutral and ground bars	<table border="0"> <tr> <td>Large holes (5/16–24 UNF)</td> <td>14 AWG–1/0 AWG</td> </tr> <tr> <td>Small holes (10–32 UNF)</td> <td>14 AWG–6 AWG</td> </tr> </table>	Large holes (5/16–24 UNF)	14 AWG–1/0 AWG	Small holes (10–32 UNF)	14 AWG–6 AWG				
Large holes (5/16–24 UNF)	14 AWG–1/0 AWG								
Small holes (10–32 UNF)	14 AWG–6 AWG								
COMPLIANCE									
Compliance (under progress)	UL 1741, UL 1741 SA, IEEE 1547:2018 (UL 1741-SB, 3rd Ed.), UL 1741 PCS CRD, UL1998, UL 869A, UL 508 <sup>8</sup> , UL 50E <sup>8</sup> CSA 22.2 No. 107.1, 47 CFR Part 15 Class B, ICES 003, ICC ES AC156 The IQ System Controller 3/3G is approved for use as service equipment in the United States								
WARRANTY									
Limited warranty (restrictions apply)	Up to 10 years (EP200G-NA-02-RSD has a 5-year warranty)								
COMPATIBILITY <sup>9</sup>									
Battery	IQ Battery 5P (IQBATTERY-5P-1P-NA)								
Microinverters	IQ8, IQ7, IQ6, and M Series Microinverters <sup>10</sup>								
IQ Combiner	IQ Combiner 5/5C (X-IQ-AM1-240-5C, X-IQ-AM1-240-5)								
Communications Kit 2	COMMS-KIT-02								

<sup>8</sup> Sections from these standards were used during the safety evaluation and included in the UL 1741 listing.

<sup>9</sup> For more details, refer to the IQ System Controller 3/3G Quick Install Guide.

<sup>10</sup> M Series Microinverters can only be supported in states that have not yet adopted IEEE 1547:2018.

Enphase does not support mixing IQ8 Series Microinverters with other series on the same IQ Gateway.



Figure 1A: Installing DER breakers for IQ8 System without generator

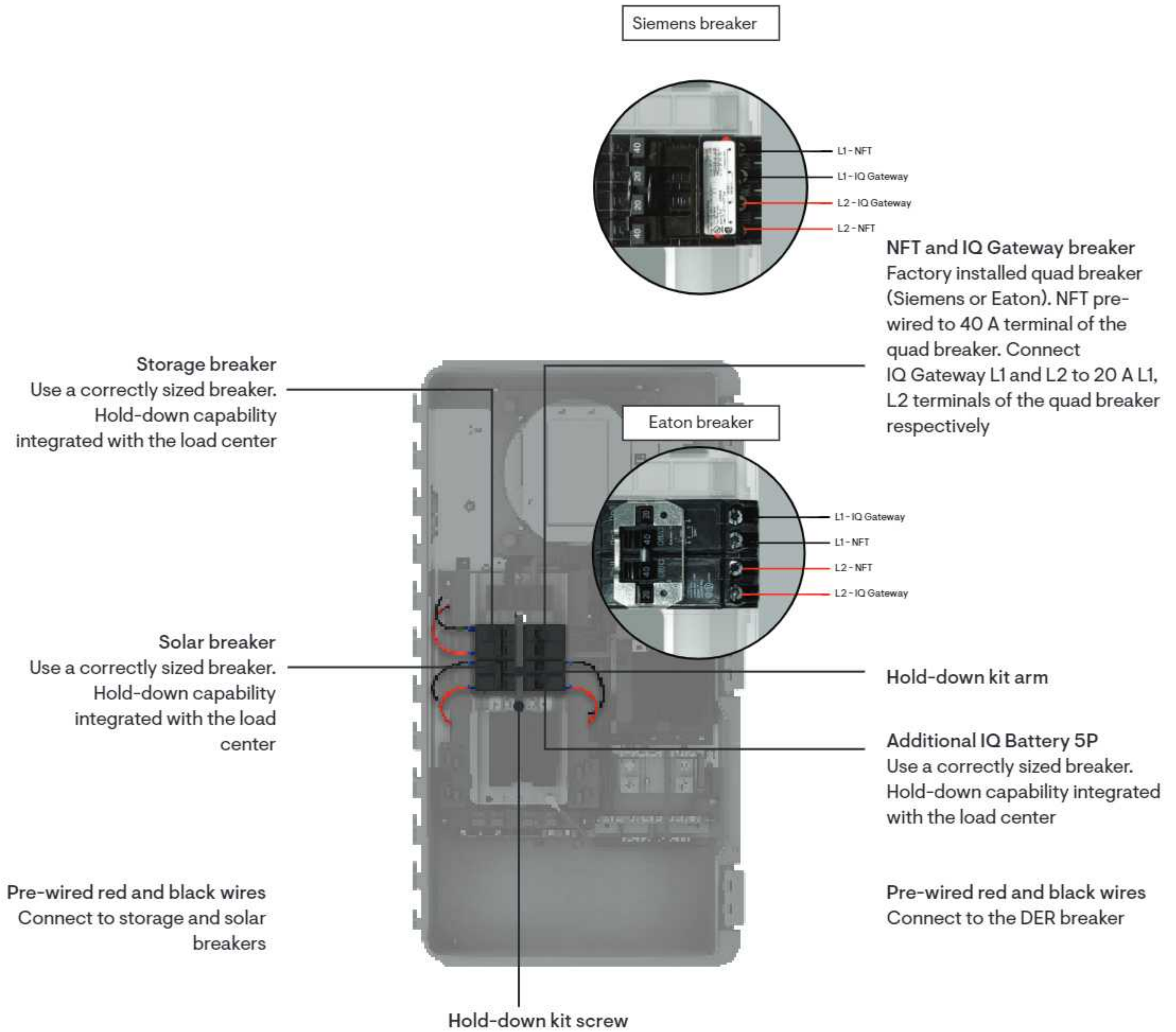




Figure 1B: Installing DER breakers for IQ8 System with generator

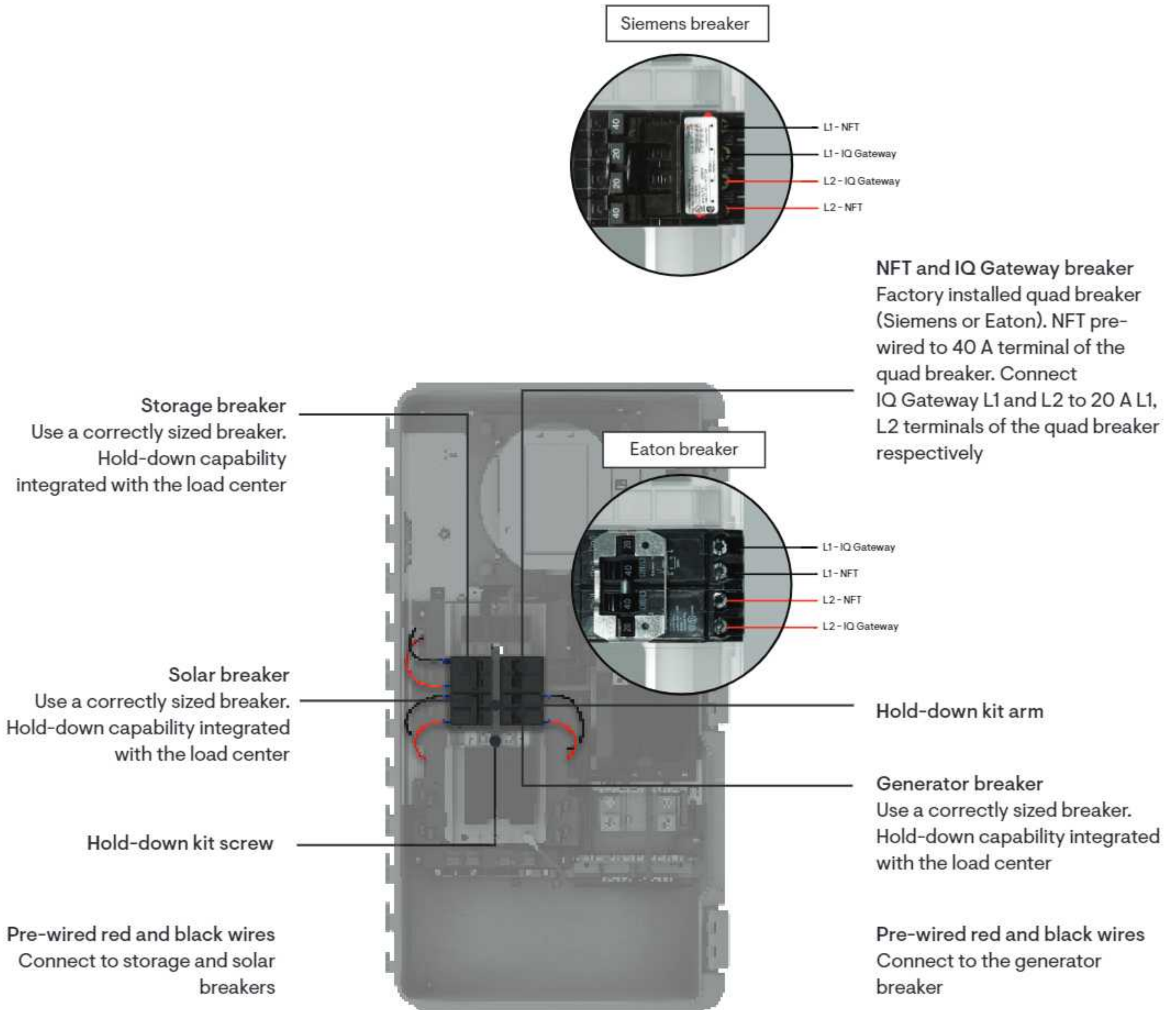
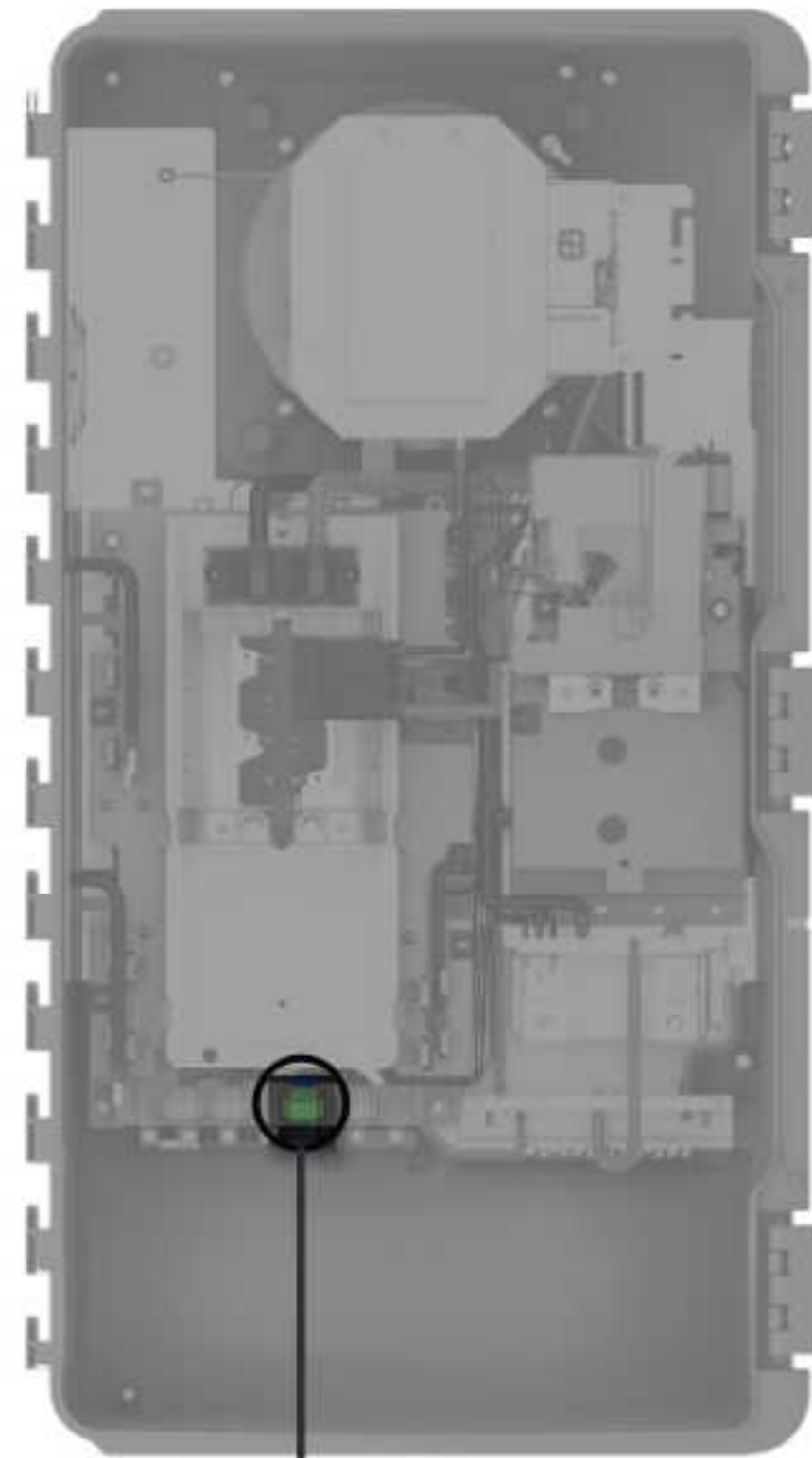


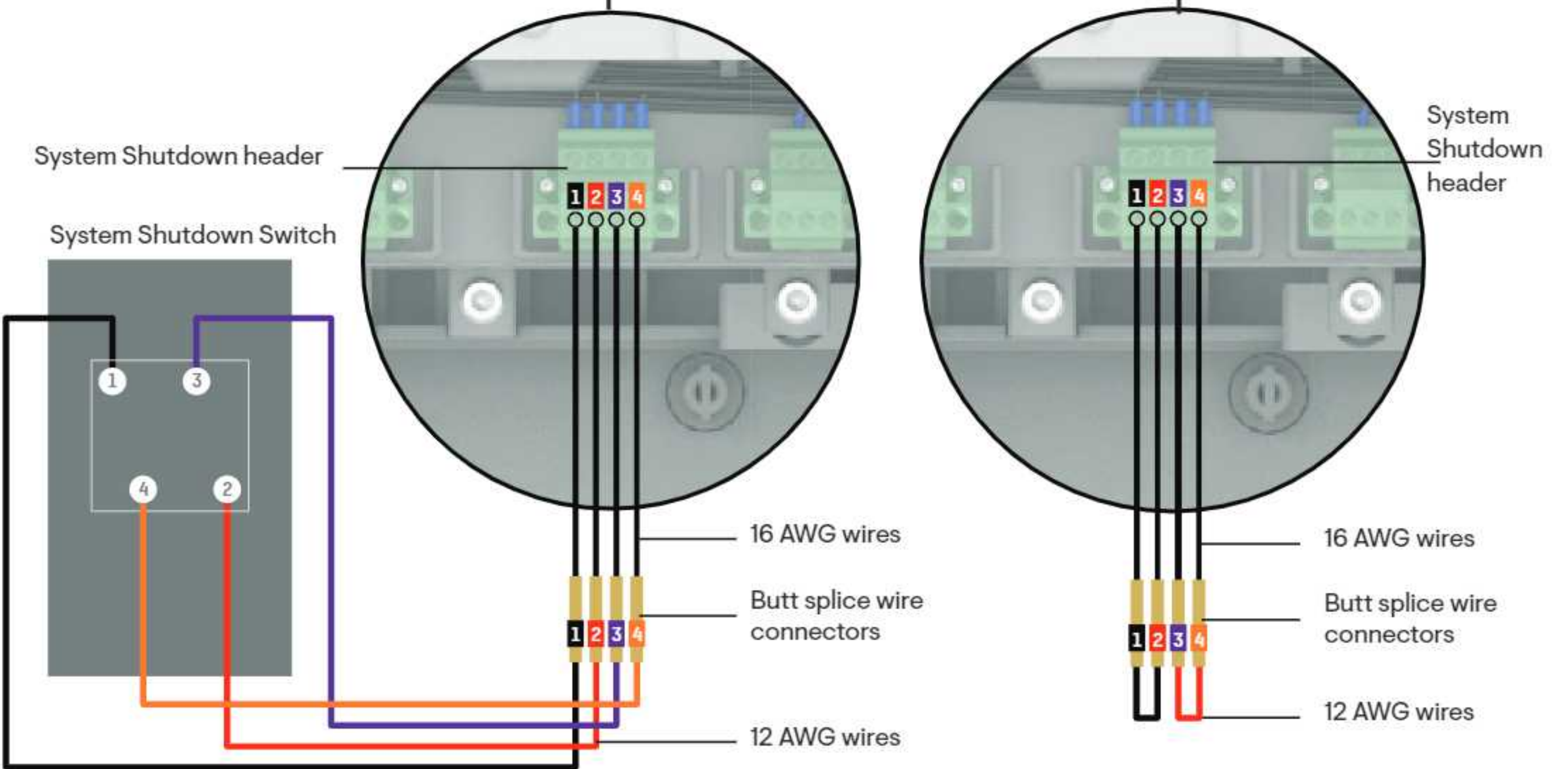


Figure 2: Wiring the System Shutdown Switch



Wiring for systems with IQ8 Microinverters

Wiring for systems with non-IQ8 Microinverters





# Revision history

REVISION	DATE	DESCRIPTION
DSH-00021-4.0	May 2024	Updated the section "Optional accessories and replacement parts" and the UL certification.
DSH-00021-3.0	August 2023	Updated the section "Optional accessories and replacement parts".
DSH-00021-2.0	July 2023	Added new section "Alternative breakers for Eaton load center".
DSH-00021-1.0	May 2023	Initial release.