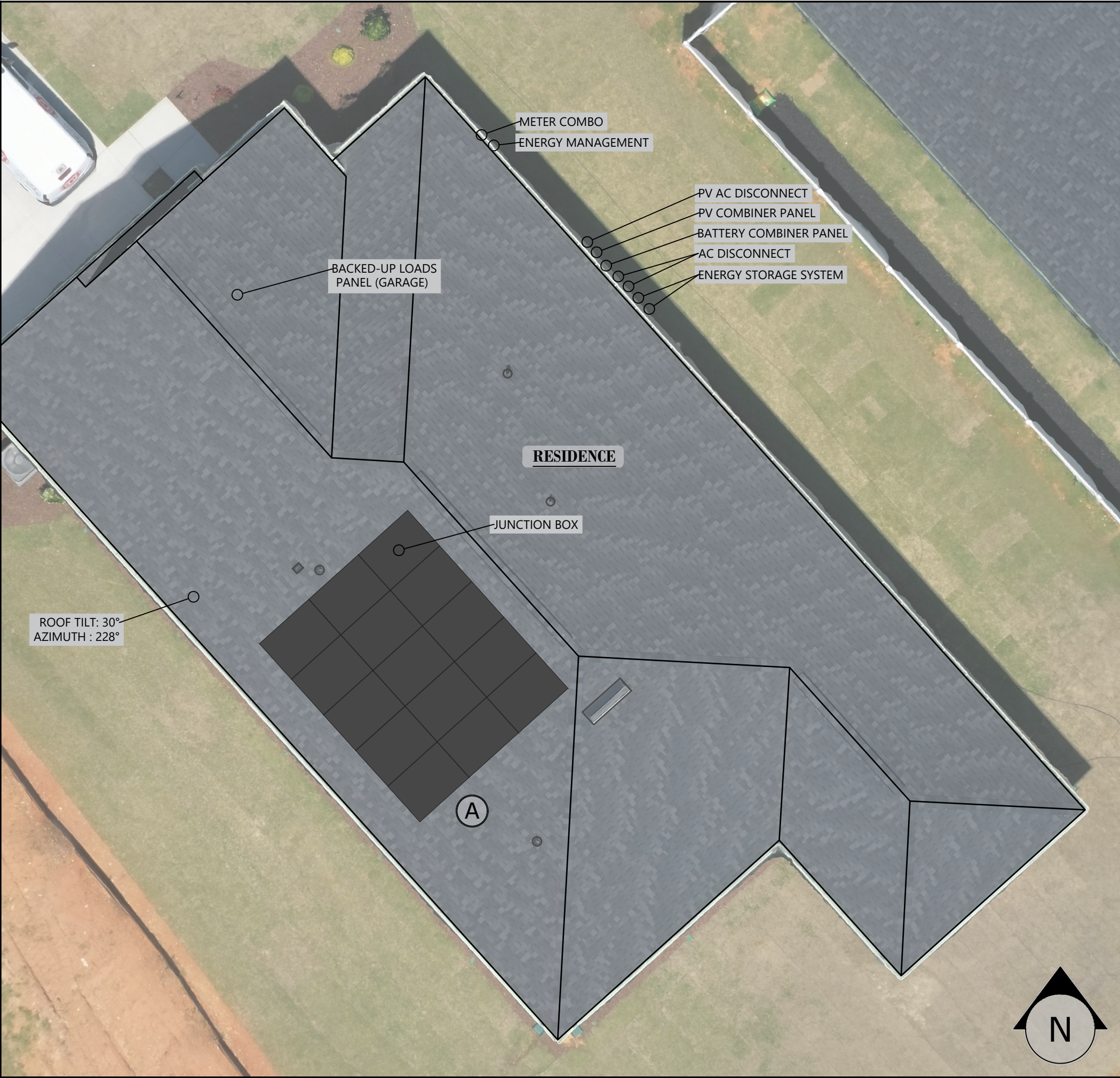


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PV MATERIAL SUMMARY: DISTRIBUTOR	
CS6.1-54TM-460H	15
IQ8AC-72-M-US	15
X-IQ-AM1-240-5-HDK	1
Q-12-17-240	17
Q-SEAL-10	2
Q-TERM-10	2
XR-10-184B	8
XR10-BOSS-01-M1	6
UFO-CL-01-B1	24
UFO-END-01-B1	12
XR-LUG-03-A1	3
4 IN QB2 (NCSN provided)	29
MI-BHW	15
GC66803 Geocel Sealant	2
SOLADECK 0799-5B	1
SOLAR MESH-P-8	1
SNRAC 242-04105	29
FRANKLIN AGT-R1V2-US	1
FRANKLIN APR-10K15V2-US	2
FRANKLIN ACCY-CT200V2-US	1
FRANKLIN ACCY-BLV2-US	1



CLIENT INFO

JESSE AND JANNAE SIFONTES  
124 NORTHWOOD DRIVE  
FUQUAY-VARINA, NC 27526

PROJECT INFO

DC INPUT: 6.900 kW  
AC EXPORT: 5.235 kW  
DOI INSPT. METHOD: OPTION 2

Model Energy

300 Fayetteville St.  
#1430  
Raleigh, NC 27602  
919-274-9905  
ModelEnergy.com  
P-1194

NORTH CAROLINA  
PROFESSIONAL  
SEAL  
035689  
ENGINEER  
ANDREW W. KING  
07-09-2025

CODE REFERENCES

NATIONAL ELECTRICAL CODE v. 2017  
NC FIRE PROTECTION CODE v. 2018  
NC BUILDING CODE v. 2018  
NC RESIDENTIAL CODE v. 2018  
ACSE v. 7-10

SITE CONDITIONS

WIND SPEED: 120 MPH  
RISK CATEGORY: II  
EXPOSURE: B  
SNOW: 15 PSF

SHEET INDEX

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PV-4: PV EQUIPMENT LABELS  
PV-5: PV INSTALL GUIDE

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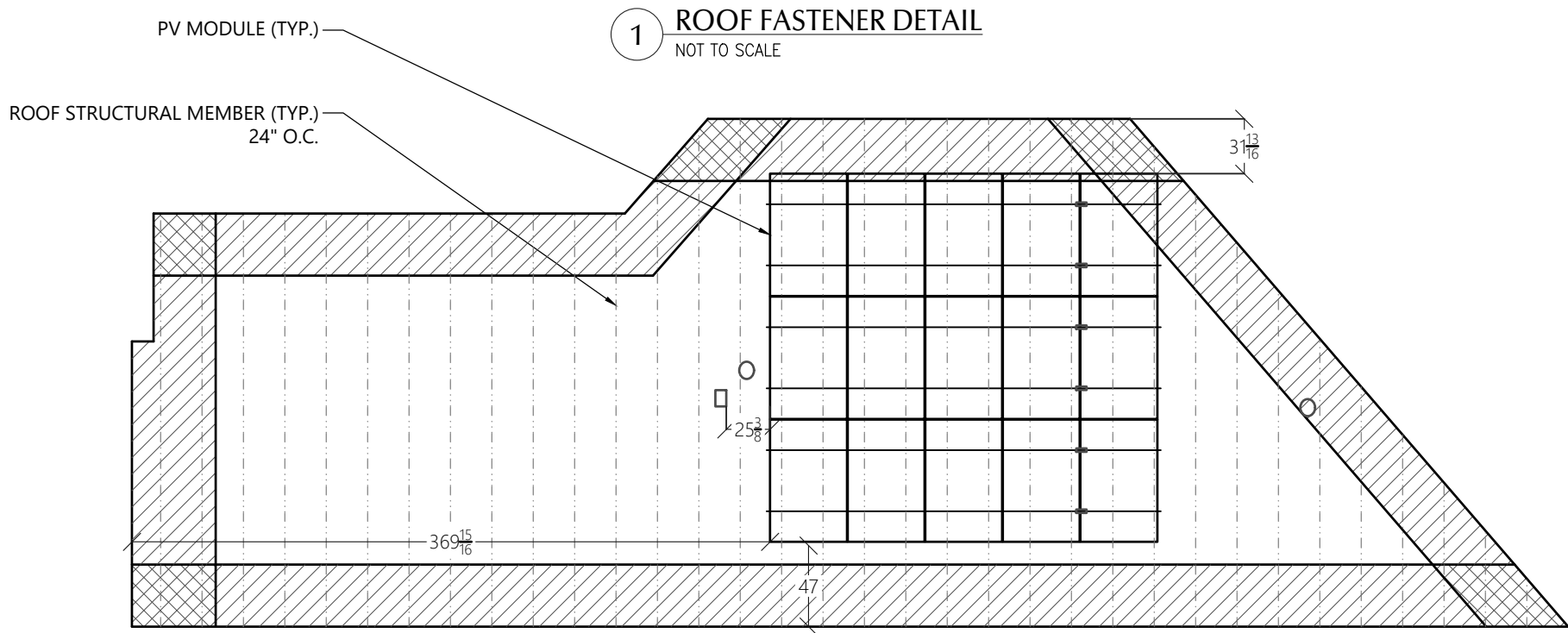
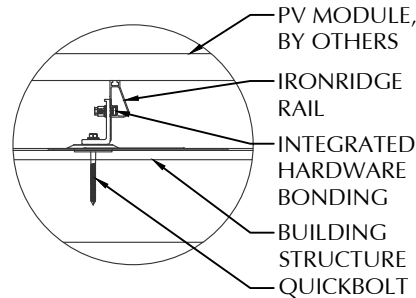
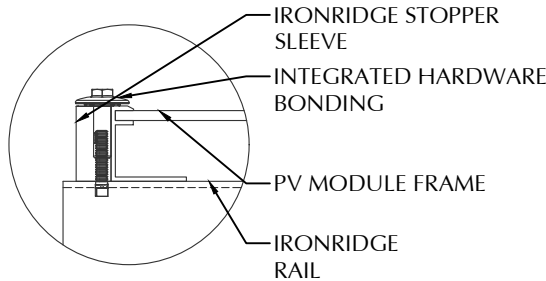
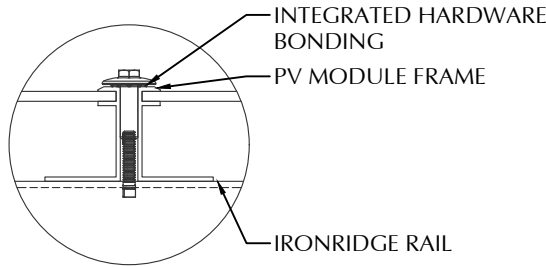
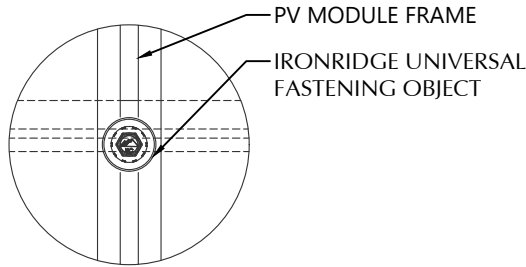
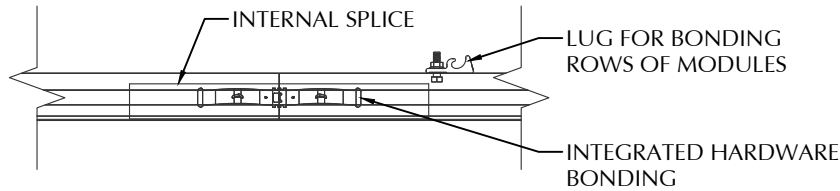
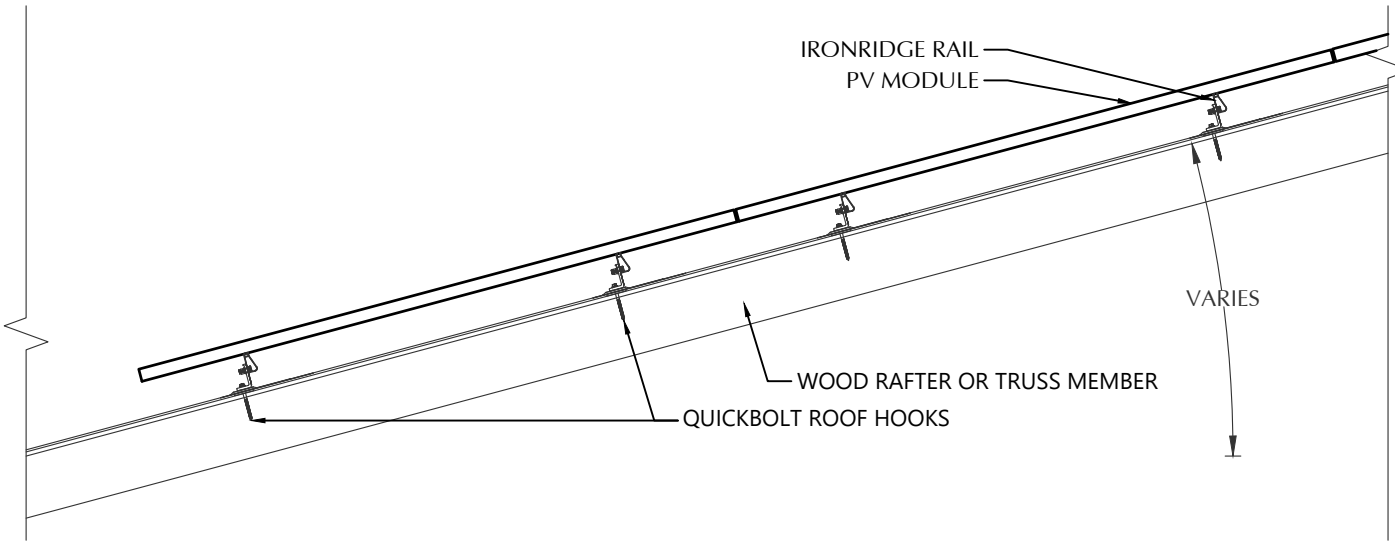
FOR:	DESIGNER	DATE
CONSTRUCTION	CRM	7/7/2025

PV SYSTEM COVER PAGE

PV-1.1



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## STATEMENT OF STRUCTURAL COMPLIANCE

THE EXISTING ROOF STRUCTURE HAS BEEN DESIGNED TO SUPPORT THE ADDITIONAL LOADS OF THE PROPOSED PV SYSTEM. IN ADDITION, THE RACKING AND FASTENING SYSTEM SHALL BE CAPABLE OF SECURING THE SYSTEM TO THE STRUCTURE UNDER DESIGN CONDITIONS WHEN INSTALLED PROPERLY AND IN ACCORDANCE WITH THE RACKING AND FASTENING ARRANGEMENT DETAILED WITHIN THESE DRAWINGS.

NAME: ANDREW W. KING, PE

SIGNED:

## PV MODULES

MAKE	CANADIAN SOLAR
MODEL	CS6.1-54TM-460H
WIDTH	44.60 IN
LENGTH	70.90 IN
THICKNESS	35 MM
WEIGHT	50.70 LBS.
ARRAY AREA	329 SQFT.
ARRAY WEIGHT	823 LBS.

## ROOF SUMMARY

STRUCTURE:	
TYPE	TRUSSES
MATERIAL	SOUTHERN PINE #2
SIZE	2 X 4
SPACING	24 IN O.C.
ALLOWABLE SPAN	88 IN
PITCH	7/12
DENSITY	30 LBS./CU.FT.
DECKING:	
TYPE	OSB
MATERIAL	COMPOSITE
THICKNESS	7/16 IN
WEIGHT	1.60 LBS/SQFT
ROOFING:	
TYPE	ASPHALT SHINGLE
MATERIAL	ASPHALT
WEIGHT	2.30 LBS/SQFT.

## ROOF MOUNT SUMMARY

MAXIMUM (IN)	MOUNT SPACING	RAIL OVERHANG
WIND ZONE 1	72 IN	24 IN
WIND ZONE 2	48 IN	24 IN
WIND ZONE 3	48 IN	21 IN

## ROOF LOADING

GROUND SNOW LOAD:	15 LBS./SQFT.
LIVE LOAD	20 LBS./SQFT.
DEAD LOAD	
ROOFING	3.9 LBS/SQFT.
PV ARRAY	2.5 LBS./SQFT.
TOTAL	6.4 LBS./SQFT.
WIND LOAD:	
UPLIFT ZONE 1	-24.6 LBS./SQFT.
UPLIFT ZONE 2	-29.0 LBS./SQFT.
UPLIFT ZONE 3	-29.0 LBS./SQFT.
DOWNWARD	23.0 LBS./SQFT.
FASTENER LOAD:	
UPLIFT ZONE 1	-433 LBS.
UPLIFT ZONE 2	-340 LBS.
UPLIFT ZONE 3	-340 LBS.
DOWNWARD	405 LBS.

## ROOF MOUNT & FASTENER

ROOF MOUNT:	
MAKE	QUICKBOLT
MODEL	4 IN QB2
MATERIAL	STAINLESS / EPDM
FASTENER:	
MAKE	QUICK SCREWS
MODEL	HEX LAG BOLT
MATERIAL	304 SS
SIZE	5/16" X 4" (1/2" HEX)
GENERAL:	
WEIGHT	0.65 LBS.
FASTENERS PER MOUNT	1
MAX. PULL-OUT FORCE	960.0 LBS.
SAFETY FACTOR	2
DESIGN PULL-OUT FORCE	480.0 LBS.

## MOUNTING RAILS

MAKE	IRONRIDGE
MODEL	XR10
MATERIAL	ALUMINUM
WEIGHT	0.036 LBS/IN
SPACING	35 IN



## CLIENT INFO

JESSE AND JANNAE SIFONTES  
124 NORTHWOOD DRIVE  
FUQUAY-VARINA, NC 27526

## PROJECT INFO

DC INPUT: 6.900 kW  
AC EXPORT: 5.235 kW  
DOI INSPT. METHOD: OPTION 2

## Model Energy

300 Fayetteville St.  
#1430  
Raleigh, NC 27602  
919-274-9905  
ModelEnergy.com

P-1194



## CODE REFERENCES

NATIONAL ELECTRICAL CODE v.2017  
NC FIRE PROTECTION CODE v. 2018  
NC BUILDING CODE v. 2018  
NC RESIDENTIAL CODE v. 2018  
ACSE v. 7-10

## SITE CONDITIONS

WIND SPEED: 120 MPH  
RISK CATEGORY: II  
EXPOSURE: B  
SNOW: 15 PSF

## SHEET INDEX

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## VERSIONS

FOR:	DESIGNER	DATE
CONSTRUCTION	CRM	7/7/2025

## PV SYSTEM STRUCTURAL

# PV-2.1

CONDUCTOR SCHEDULE										
TAG	CURRENT CARRYING CONDUCTORS			GROUNDING CONDUCTORS			CONDUIT/RACEWAY			NOTES
	QTY.	SIZE	INSULATION	QTY.	SIZE	INSULATION	QTY.	SIZE	LOCATION	
C1	4	12 AWG	DG CABLE	1	6 AWG	BARE	-	-	FREE AIR	1
C2	4	10 AWG	THWN	1	10 AWG	THWN	2	3/4"	EXT/INT	2,4
C3	3	10 AWG	THWN-2	1	10 AWG	THWN-2	1	1/2"	EXTERIOR	2,4
C4	3	6 AWG	THWN-2	1	10 AWG	THWN-2	1	1"	EXTERIOR	2,4
C5	3	1 AWG	THWN-2	1	6 AWG	THWN-2	1	1-1/2"	EXTERIOR	2,4
C6	3	3 AWG	THWN-2	1	8 AWG	THWN-2	1	1"	EXT/INT	2,4
XC	-	-	-	-	-	-	-	-	-	3

NOTES:

- MANUFACTURER PROVIDED, UL LISTED WIRING HARNESS FOR USE ON EXPOSED ROOFS
- CONDUIT SIZE SHOWN IS CODE MINIMUM. LARGER SIZES ARE ALLOWED.
- EXISTING CONDUCTORS, FIELD VERIFY
- EQUIPMENT TERMINAL RATING SHALL BE A MINIMUM OF 75°C AT BOTH END OF CONDUCTOR
- PLEASE REFERENCE NOTES ON PV-4.1 FOR ADDITIONAL DETAIL

JUNCTION BOX	
MAKE	SOLADECK
PROTECT. RATING	NEMA TYPE 3R
UL LIST. (Y/N)	YES

BATTERY COMBINER PANEL	
MAKE	GENERIC
MODEL	NA
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
BUS RATING	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	NO
MAIN BREAKER RATING	N/A

- CONNECT EACH BATTERY VIA ITS OWN 60A BREAKER
- OUTPUT TO FEED BACKUP LUGS EXPANSION KIT IN ENERGY MANAGEMENT

ENERGY STORAGE SYSTEM	
MAKE	FRANKLINWH
MODEL	APOWER 2
USABLE ENERGY	15.0 kWh
NOM. VOLT.	240 VOLTS
REAL POWER CONT.	8000 WATTS
UL LIST. (Y/N)	YES
OCPD	60 AMPS
PROTECTION RATING	NEMA 3R

PV AC DISCONNECT	
MAKE	GENERIC
MODEL	NA
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
AMP RATING	30 AMPS
UL LIST. (Y/N)	YES
FUSED (Y/N)	NO
FUSE RATING	N/A

- LOAD-BREAK RATED
- VISIBLE OPEN
- LOCKABLE IN OPEN POSITION
- INSTALL ADJACENT TO METER
- DISCONNECT TO BE READILY ACCESSIBLE TO UTILITY COMPANY PERSONNEL AT ALL TIMES
- DISCONNECT MARKED AND RATED PER NEC SECTION 690.13 AND 705.10

PV MODULE	
MAKE	CANADIAN SOLAR
MODEL	CS6.1-54TM-460H
NOM. POWER (PNOM)	460 WATTS
NOM. VOLT. (VMPP)	33.4 VOLTS
O.C. VOLT (VOC)	39.3 VOLTS
MAX. SYS. VOLT.	1000 VOLTS
NOM. CURR. (IMPP)	13.8 AMPS
S.C. CURR. (ISC)	14.7 AMPS
TEMP. COEF. (PMPP)	-0.29 %/C
TEMP. COEF. (Voc)	-0.25 %/C
MAX SERIES FUSE	25 AMPS
UL COMPLIANT (Y/N)	YES

ENERGY MANAGEMENT	
MAKE	FRANKLINWH
MODEL	AGATE 1.3
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
DISCONNECT CURR.	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	NO
MAIN BREAKER RATING	N/A

- TROUGH MAY BE USED IF NECESSARY
- REMOVE N/G BONDING JUMPER
- FEED BACKED-UP LOADS PANEL VIA BACKUP LUGS EXPANSION KIT
- CONNECT PV OUTPUT VIA 30A BREAKER IN DESIGNATED BUSBAR LOCATION
- SET CONDUCTOR LIMIT UPSTREAM TO 90A

PV COMBINER PANEL	
MAKE	ENPHASE
MODEL	X-IQ-AM1-240-5-HDK
INPUT:	
MAX BRANCH CIRCUITS	4 TOTAL
BRANCH CIRCUIT OCPD	50.00 AMPS
OUTPUT:	
MAX POWER	NA
NOM. VOLTAGE	240 VOLTS
BUS RATING	125.00 AMPS
MAIN BREAKER Y/N	NO
ENCL. RATING	NEMA TYPE 3R
UL LIST. (Y/N)	YES

BACKED-UP LOADS PANEL (EXISTING)	
MAKE	SIEMENS
MODEL	PN2448L1125C
ENCL. RATING	NEMA 1
VOLT. RATING	240 VOLTS
BUS RATING	125 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
MAIN BREAKER RATING	90 AMPS

- INSTALL NEW 90A BRANCH FED MAIN BREAKER

METER COMBO (EXISTING)	
MAKE	SIEMENS
MODEL	MC0606L1200R
ENCL. RATING	NEMA 3R
VOLT. RATING	240
BUS RATING	200 AMPS
UL LIST. (Y/N)	YES
MAIN BREAKER (Y/N)	YES
MAIN BREAKER RATING	200 AMPS

- EACH BREAKER SERVES AS SERVICE DISCONNECT SWITCH
- REDIRECT SUBPANEL TO FEED ENERGY MANAGEMENT

DC / AC INVERTER	
MAKE	ENPHASE
MODEL	IQ8AC-72-M-US
DC INPUT:	
POWER RANGE (WATTS)	295-500
MIN/MAX START VOLT.	22 / 58
OPERATING VOLT. RANGE	18-58
MAX. CURRENT	20.00 AMPS
MODULE COMPATIBILITY	60 & 72 CELL
AC OUTPUT:	
MAX. POWER	366 WATTS
NOM. POWER	349 WATTS
NOM. VOLT.	211-240-264
MAX. CURR.	1.45 AMPS
DC DISC. (Y/N)	NO
RAPID SHUTDOWN (Y/N)	YES
PROTECT. RATING	NEMA TYPE 6
UL LIST. (Y/N)	YES
MAX BRANCH CIRCUIT	YES

AC DISCONNECT	
MAKE	GENERIC
MODEL	NA
ENCL. RATING	NEMA 3R
VOLT. RATING	240 VOLTS
AMP RATING	60 AMPS
UL LIST. (Y/N)	YES
FUSED (Y/N)	NO
FUSE RATING	N/A

- LOAD-BREAK RATED
- VISIBLE OPEN
- LOCKABLE IN OPEN POSITION
- INSTALL ADJACENT TO METER
- DISCONNECT TO BE READILY ACCESSIBLE TO UTILITY COMPANY PERSONNEL AT ALL TIMES
- DISCONNECT MARKED AND RATED PER NEC SECTION 705.10



CLIENT INFO	
JESSE AND JANNAE SIFONTES 124 NORTHWOOD DRIVE FUQUAY-VARINA, NC 27526	

PROJECT INFO	
DC INPUT:	6.900 kW
AC EXPORT:	5.235 kW
DOI INSPT. METHOD:	OPTION 2

Model Energy

300 Fayetteville St.  
#1430  
Raleigh, NC 27602  
919-274-9905  
ModelEnergy.com

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CODE REFERENCES	
NATIONAL ELECTRICAL CODE v. 2017 NC FIRE PROTECTION CODE v. 2018 NC BUILDING CODE v. 2018 NC RESIDENTIAL CODE v. 2018 ACSE v. 7-10	

SITE CONDITIONS	
WIND SPEED:	120 MPH
RISK CATEGORY:	II
EXPOSURE:	B
SNOW:	15 PSF

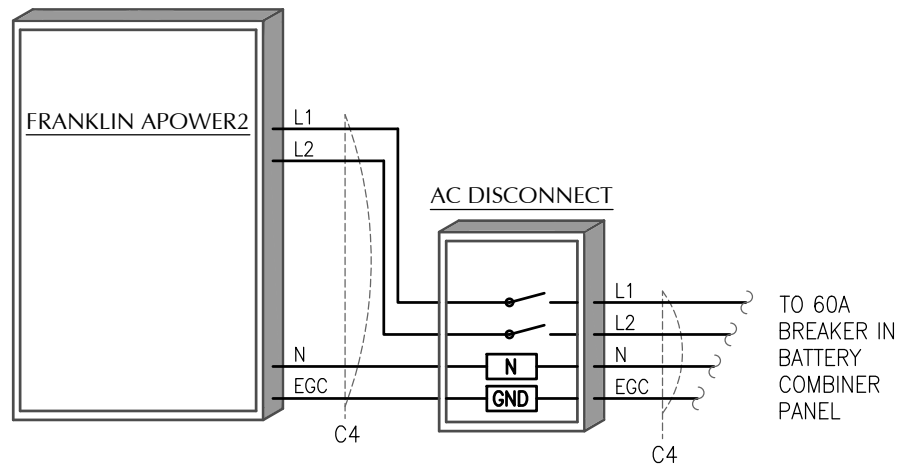
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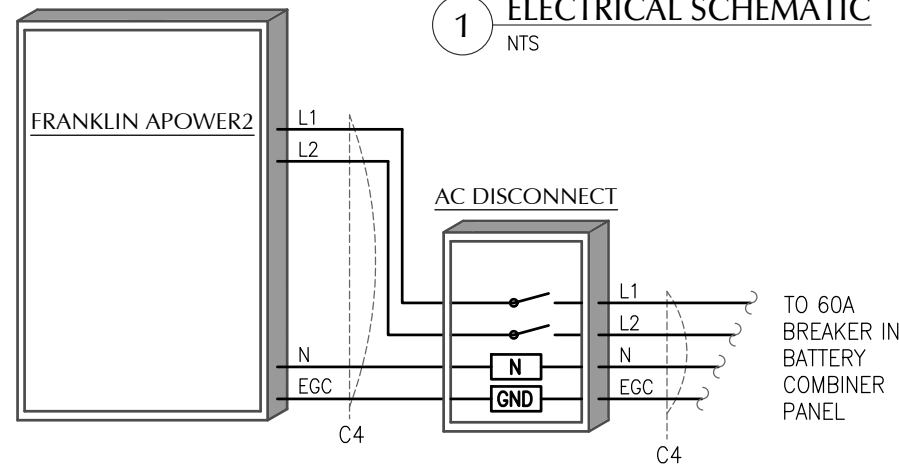
PV SYSTEM ELECTRICAL
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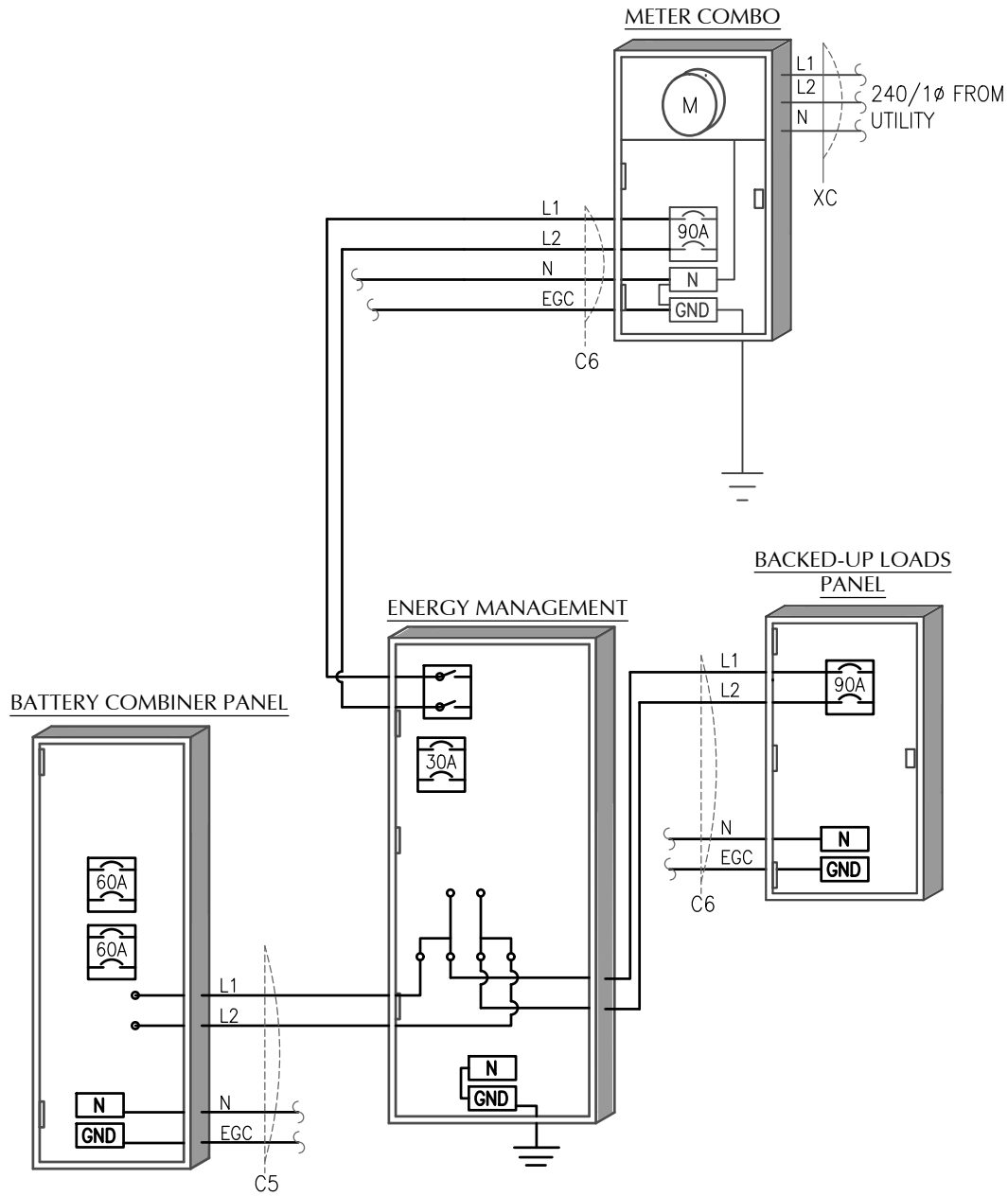
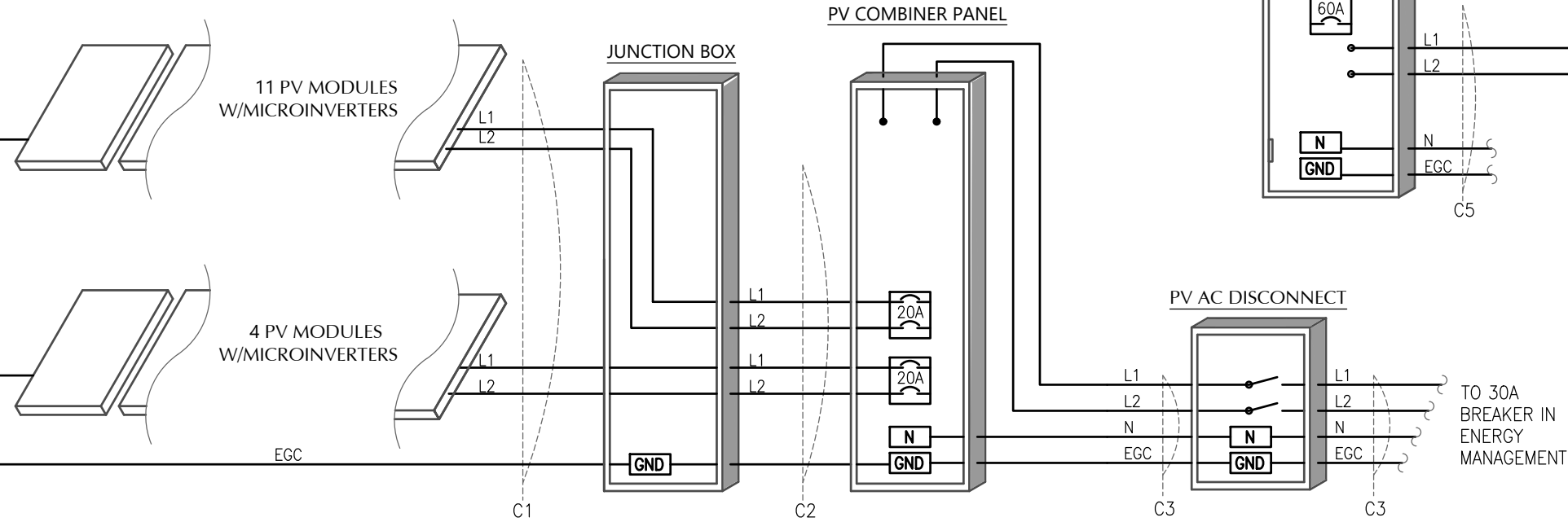
ENERGY STORAGE SYSTEM



ENERGY STORAGE SYSTEM



1 ELECTRICAL SCHEMATIC  
NTS



CLIENT INFO

JESSE AND JANNAE SIFONTES  
124 NORTHWOOD DRIVE  
FUQUAY-VARINA, NC 27526

PROJECT INFO

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SITE CONDITIONS

WIND SPEED: 120 MPH  
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EXPOSURE: B  
SNOW: 15 PSF

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FOR:	DESIGNER:	DATE:
CONSTRUCTION	CRM	7/7/2025

PV SYSTEM  
ELECTRICAL

PV-3.2



# RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

NEC 690.56 (C)(3)  
PLACE ON RAPID SHUTDOWN SWITCH OR EQUIPMENT WITH INTEGRATED RAPID SHUTDOWN \*REFLECTIVE\*

⚠️WARNING

THIS EQUIPMENT FED BY MULTIPLE SOURCES. TOTAL RATING OF ALL OVERCURRENT DEVICES EXCLUDING MAIN SUPPLY OVERCURRENT DEVICE SHALL NOT EXCEED AMPACITY OF BUSBAR.

NEC 705.12 (B)(2)(3)(c)

⚠️WARNING

PHOTOVOLTAIC SYSTEM COMBINER PANEL

DO NOT ADD LOADS

NEC 705.12 (C)(3)  
PLACE ON PV COMBINER PANEL

⚠️WARNING⚠️

THREE POWER SOURCES

SOURCES: UTILITY GRID, BATTERY AND PV SOLAR ELECTRIC SYSTEM

NEC 705.12(B)(3)  
PLACE ON ALL EQUIPMENT THAT IS SUPPLIED BY THREE POWER SOURCES

PHOTOVOLTAIC SYSTEM AC DISCONNECT

OPERATING VOLTAGE240VOLTS

OPERATING CURRENT21.75AMPS

NEC 690.54  
PLACE ON INTERCONNECTION DISCONNECTING MEANS

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

NEC 690.56 (C)(1)(a)  
PLACE WITHIN 3FT OF SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED AND SHALL INDICATE THE LOCATIONS OF RAPID SHUTDOWN SWITCHES

SERVICE DISCONNECT LOCATED:

BATTERY DISCONNECT LOCATED:

PV DISCONNECT LOCATED:

NEC 705.10  
PLACE AT SERVICE EQUIPMENT AND PV SYSTEM DISCONNECTING MEANS.

# PV SYSTEM DISCONNECT

NEC 690.13 (B)  
PLACE ON PV SYSTEM DISCONNECTING MEANS.

## LABEL NOTES:

- LABELS SHOWN ARE NOT TO SCALE.
- LABEL MATERIAL SHALL BE SUITABLE FOR THE EQUIPMENT ENVIRONMENT.
- DC CONDUIT SHALL BE MARKED WITH REQUIRED LABEL EVERY 10 FEET.
- PHOTOVOLTAIC SYSTEMS SHALL BE PERMANENTLY MARKED AT VARIOUS EQUIPMENT LOCATIONS TO IDENTIFY THAT A PHOTOVOLTAIC SYSTEM IS INSTALLED AND THAT VARIOUS DANGERS ARE PRESENT.
- EACH PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS SHALL BE PERMANENTLY MARKED TO IDENTIFY IT AS A PHOTOVOLTAIC SYSTEM DISCONNECT.
- WHERE ALL TERMINALS OF A DISCONNECTING MEANS MAY BE ENERGIZED IN THE OPEN POSITION, A WARNING SIGN SHALL BE MOUNTED ON OR ADJACENT TO THE DISCONNECT.
- A PERMANENT LABEL FOR THE DIRECT-CURRENT PHOTOVOLTAIC POWER SOURCE SHALL BE PROVIDED AT THE DC DISCONNECT MEANS.
- A PERMANENT PLAQUE OR DIRECTORY, DENOTING ALL ELECTRIC POWER SOURCES SERVING THE PREMISES, SHALL BE INSTALLED AT EACH SERVICE EQUIPMENT LOCATION AND AT LOCATIONS OF ALL POWER PRODUCTION SOURCES.
- LABELS WILL BE APPLIED IN ACCORDANCE WITH THE NEC. SOME LABELS SHOWN MAY NOT BE NECESSARY.

## WIRING NOTES:

- CONDUCTORS SHALL BE COPPER OR ALUMINUM, RATED AT NOT LESS THAN 600 VOLTS
- MINIMUM SIZE SHALL BE #14 AWG UNLESS OTHERWISE NOTED ON THE DRAWINGS.
- EXPOSED WIRING CONDUCTOR INSULATION SHALL BE TYPE PV WIRE, USE-2, OR RHW-2 WHERE THE OUTER LAYER OF THE INSULATION IS UV, SUNLIGHT, AND MOISTURE RESISTANT. CABLE ASSEMBLIES SHALL BE TYPE DG. BARE CONDUCTORS SHALL BE A MINIMUM OF #6 AWG.
- EXTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THWN-2 AND INSTALLED IN ELECTRICAL METALLIC TUBING(EMT), RIGID POLYVINYL CHLORIDE CONDUIT(PVC), RIGID METALLIC CONDUIT (RMC), LIQUIDTIGHT FLEXIBLE METALLIC CONDUIT (LFMC), OR LIQUIDTIGHT FLEXIBLE NON METALLIX CONDUIT (LFNC). SE-TYPE CABLE CAN BE USED AS AN ALTERNATIVE. ADDITIONAL WIRING METHODS SHALL BE PERMITTED ONLY WHEN IN COMPLIANCE WITH ALL NEC REQUIREMENTS.
- INTERIOR WIRING CONDUCTOR INSULATION SHALL BE TYPE THWN-2 OR XHHW AND INSTALLED IN ELECTRICAL METALLIC TUBING (EMT), FLEXIBLE METAL CONDUIT(FMC), LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC), LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT (LFNC). TYPE SE, NM, AND MC CABLE ASSEMBLIES SHALL ALSO BE PERMITTED. ADDITIONAL WIRING METHODS SHALL BE PERMITTED ONLY WHEN IN COMPLIANCE WITH ALL NEC REQUIREMENTS.
- BURIED WIRING CONDUCTOR INSULATION SHALL BE RATED FOR DIRECT BURIAL WHEN INSTALLED OUTSIDE OF RACEWAY. CONDUCTOR INSULATION SHALL BE TYPE THWN-2 OR XHHW AND INSTALLED IN RIGID PVC, RIGID METALLIC CONDUIT, OR HDPE. ADDITIONAL WIRING METHODS SHALL BE PERMITTED ONLY WHEN IN COMPLIANCE WITH ALL NEC REQUIREMENTS.
- USE SCHEDULE 40 PVC OUTDOORS WHERE NOT SUBJECT TO PHYSICAL DAMAGE OR BELOW FLOOR SLAB. USE SCHEDULE 80 PVC OUTDOORS WHERE SUBJECT TO PHYSICAL DAMAGE
- MINIMUM CONDUIT SIZE TO BE 1/2".
- WIRING METHODS TO CONFORM TO CHAPTER 3 OF THE NEC.

## CONSTRUCTION NOTES:

- ALL WORK IS TO BE PERFORMED IN ACCORDANCE WITH THE NEC, STATE, AND LOCAL APPLICABLE CODES.
- FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS, BEST PRACTICES, AND SPECIFICATIONS.
- ENSURE REQUIRED MAINTENANCE ACCESS AND CLEARANCES ARE
- FUSES 0 - 600 AMPS SHALL BE UL CLASS "RK-1" LOW PEAK DUAL ELEMENT TIME DELAY WITH 200,000 AMPERE INTERRUPTING RATING A, UNLESS NOTED OTHERWISE.
- ALL TERMINALS, SPlicing CONNECTORS, LUGS, ETC SHALL BE IDENTIFIED FOR USE WITH THE MATERIAL (CU/AL) OF THE CONDUCTOR AND SHALL BE PROPERLY INSTALLED.
- ALL PENETRATIONS THROUGH EXTERIOR ROOFS SHALL BE FLASHED IN A WATERPROOF MANNER.
- ALL PENETRATIONS THROUGH ATTIC FIRE BARRIERS SHALL BE SEALED WITH FIRE-BARRIER SEALANT CAULK.
- SUPPORT ALL CONDUIT AND EQUIPMENT IN ACCORDANCE W/ NEC. ANY SUSPENDED MATERIALS SHALL BE DIRECTLY SUPPORTED BY THE BUILDING STRUCTURE.
- A NORTH CAROLINA REGISTERED DESIGN PROFESSIONAL WILL BE REQUIRED TO SEAL THE STRUCTURAL DESIGN AT THE TIME OF PERMIT APPLICATION IF ANY OF THE FOLLOWING EXIST AND ARE ATTESTED TO BY THE APPLICANT:
  - THE WEIGHT OF THE PV SYSTEM EXCEEDS THREE (3) POUNDS PER SQUARE FOOT(PSF)
  - THE ROOF POSSESSES MORE THAN ONE (1) LAYER OF ASPHALT SHINGLES
  - THE ROOFING MATERIAL CONSISTS OF A TYPE OTHER THAN ASPHALT SHINGLES OR METAL
  - THE ROOF IS LOCATED IN A 140 MPH OR GREATER WIND ZONE



## CLIENT INFO

JESSE AND JANNAE SIFONTES  
124 NORTHWOOD DRIVE  
FUQUAY-VARINA, NC 27526

## PROJECT INFO

DC INPUT:6.900 kW  
AC EXPORT:5.235 kW  
DOI INSPT. METHOD:OPTION 2

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P-1194



## CODE REFERENCES

NATIONAL ELECTRICAL CODE v.2017  
NC FIRE PROTECTION CODE v. 2018  
NC BUILDING CODE v. 2018  
NC RESIDENTIAL CODE v. 2018  
ACSE v. 7-10

## SITE CONDITIONS

WIND SPEED:120 MPH  
RISK CATEGORY:II  
EXPOSURE:B  
SNOW:15 PSF

## SHEET INDEX

PV-1: COVER SHEET  
PV-2: PV STRUCTURAL  
PV-3: PV ELECTRICAL  
PV-4: PV EQUIPMENT LABELS  
PV-5: PV INSTALL GUIDE

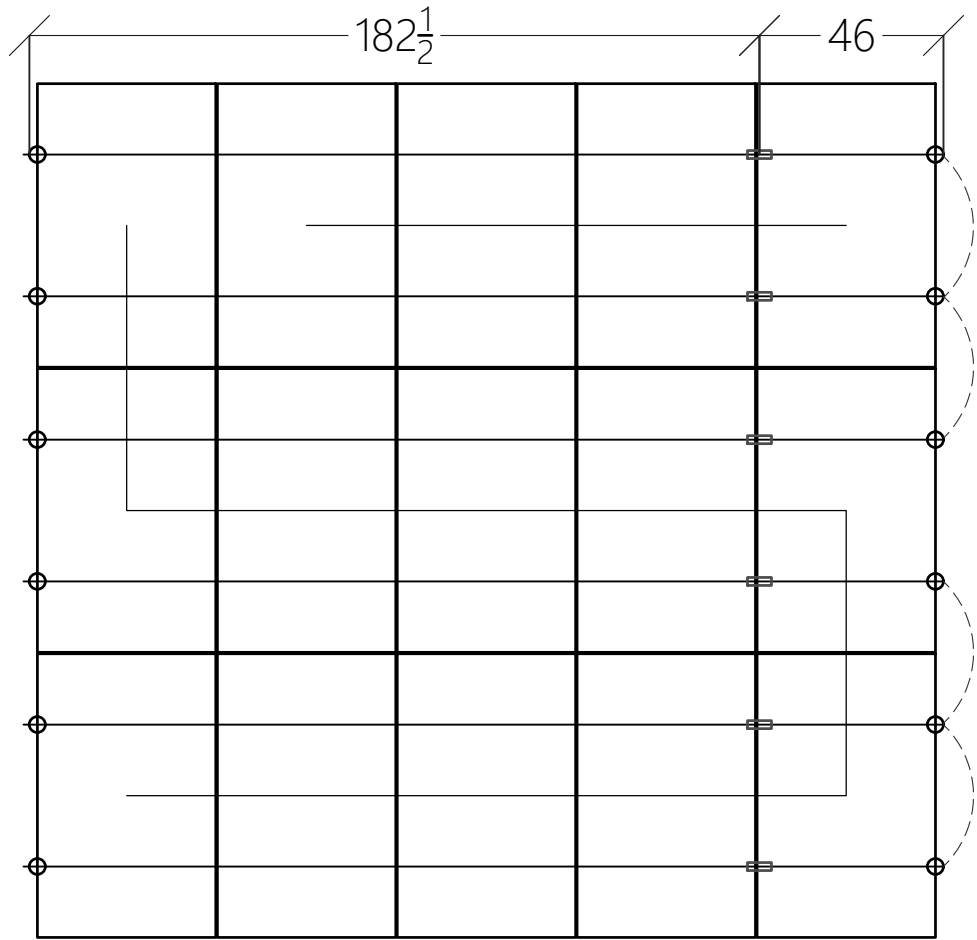
## VERSIONS

FOR:	DESIGNER	DATE
CONSTRUCTION	CRM	7/7/2025

## PV SYSTEM EQUIPMENT LABELS

# PV-4.1





1 ARRAY LAYOUT DETAIL  
NOT TO SCALE



CLIENT INFO	
JESSE AND JANNAE SIFONTES 124 NORTHWOOD DRIVE FUQUAY-VARINA, NC 27526	
PROJECT INFO	
DC INPUT:	6.900 kW
AC EXPORT:	5.235 kW
DOI INSPT. METHOD:	OPTION 2

Model Energy  
300 Fayetteville St.  
#1430  
Raleigh, NC 27602  
919-274-9905  
ModelEnergy.com  
P-1194



CODE REFERENCES	
NATIONAL ELECTRICAL CODE v. 2017	
NC FIRE PROTECTION CODE v. 2018	
NC BUILDING CODE v. 2018	
NC RESIDENTIAL CODE v. 2018	
ACSE v. 7-10	

SITE CONDITIONS	
WIND SPEED:	120 MPH
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PV-1:	COVER SHEET
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VERSIONS		
FOR:	DESIGNER	DATE
CONSTRUCTION	CRM	7/7/2025

PV SYSTEM INSTALL  
GUIDE

PV-5.1



# NEW QB2

NO  
LIFTING  
SHINGLES

NO  
REMOVING  
NAILS

SEALANT IS  
NOW YOUR  
CHOICE

FOR ASPHALT, TPO, & EPDM ROOFS

## LAYERS OF PROTECTION

### OPTIONAL SEALANT

We recommend that sealant is inserted into the predrilled hole to fill the penetration and ensure that the Microflashing® adheres completely to the roof.

### MICROFLASHING®

Our innovative Microflashing® is placed over the predrilled hole to flash the penetration.

### QB2 SHOULDER

The shoulder of the QB2 compresses the Microflashing® to create a leak-proof seal and acts like a cork to plug the hole.

THE FASTEST, SIMPLEST,  
MOST EFFICIENT QUICKBOLT

## ERROR-PROOF COMPRESSION

The QB2 doesn't leave any room for user error when it comes to Microflashing® compression. Once the Dual Drive Shoulder Screw is secured, the Microflashing® is compressed!

## ONLY 3 COMPONENTS

The QB2 is comprised of Microflashing®, an L-Foot, and a Dual Drive Shoulder Screw. No more Nuts needed to tighten and secure the L-Foot! Not only does this simplify the installation process, it also cuts down the installation time!

## DUAL DRIVE

The new Dual Drive Shoulder Screw design can be driven using a standard ½" Hex Nut Setter or a 6mm Hex Driver. Installers can use the drive that works best with the rest of the components of their array.

## INDEPENDENT LAB TEST RESULTS

ASTM E331 (modified)	Water pressure test at 15psf for 120 minutes	NO LEAKAGE
ASTM E2140	Static water pressure test in 6" water column for 7 days	NO LEAKAGE
BOTH TESTS PASSED WITH AND WITHOUT SEALANT		

Complete Test Results available online in the AHJ Packets  
Patent# 8448407



3" QB2: PN 17662 | 4" QB2: PN 17663

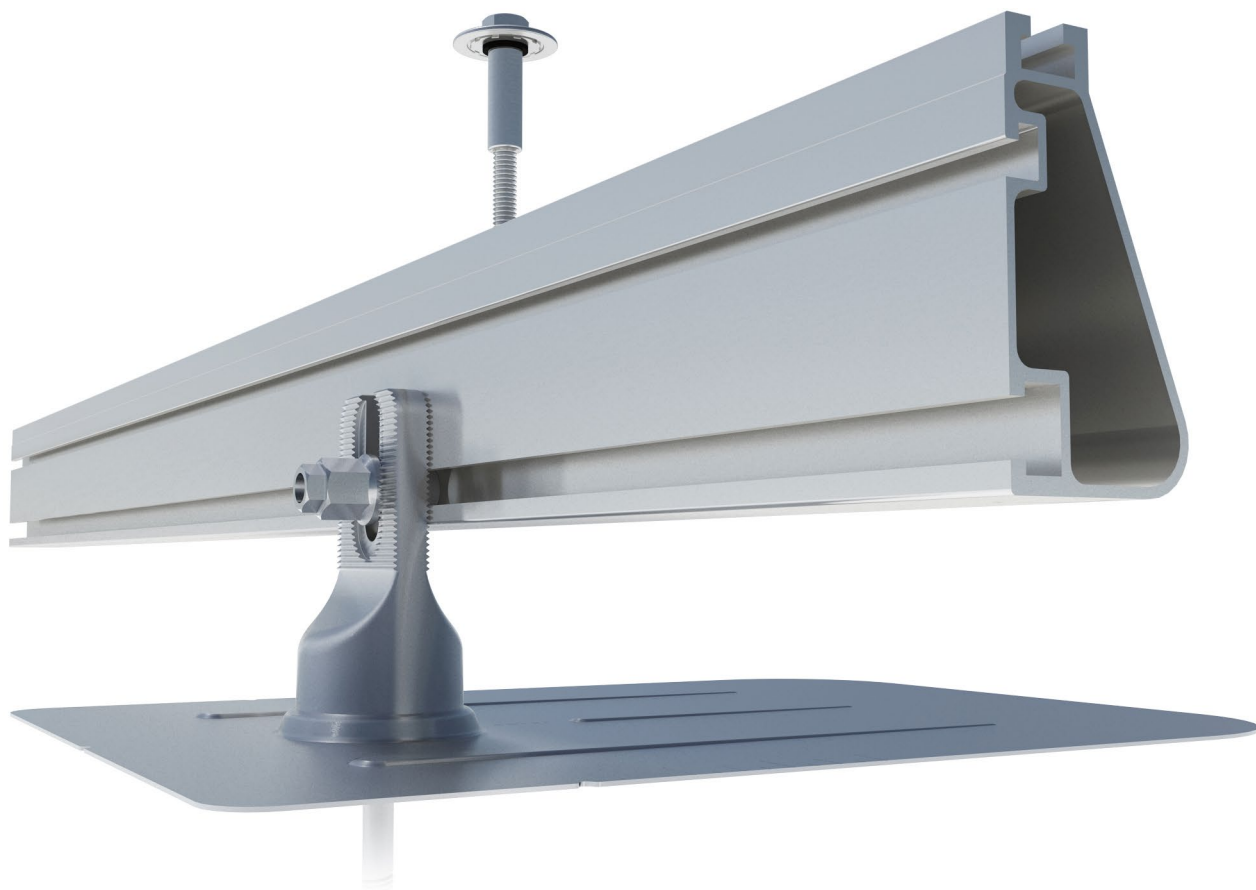
**QUICKBOLT.COM**

(844) 671-6045 • MON-FRI: 7AM-5PM PST





## Flush Mount System



### Built for solar's toughest roofs.

IronRidge builds the strongest mounting system for pitched roofs in solar. Every component has been tested to the limit and proven in extreme environments.

Our rigorous approach has led to unique structural features, such as curved rails and reinforced flashings, and is also why our products are fully certified, code compliant and backed by a 20-year warranty.



#### Strength Tested

All components evaluated for superior structural performance.



#### PE Certified

Pre-stamped engineering letters available in most states.



#### Class A Fire Rating

Certified to maintain the fire resistance rating of the existing roof.



#### Design Assistant

Online software makes it simple to create, share, and price projects.



#### UL 2703 Listed System

Entire system and components meet newest effective UL 2703 standard.



#### 25-Year Warranty

Products guaranteed to be free of impairing defects.



## XR Rails ☺

### XR10 Rail



A low-profile mounting rail for regions with light snow.

- 6' spanning capability
- Moderate load capability
- Clear and black finish

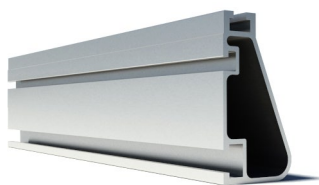
### XR100 Rail



The ultimate residential solar mounting rail.

- 8' spanning capability
- Heavy load capability
- Clear and black finish

### XR1000 Rail



A heavyweight mounting rail for commercial projects.

- 12' spanning capability
- Extreme load capability
- Clear anodized finish

### Bonded Splices



All rails use internal splices for seamless connections.

- Self-drilling screws
- Varying versions for rails
- Forms secure bonding

## Clamps & Grounding ☺

### UFOs



Universal Fastening Objects bond modules to rails.

- Fully assembled & lubed
- Single, universal size
- Clear and black finish

### Stopper Sleeves



Snap onto the UFO to turn into a bonded end clamp.

- Bonds modules to rails
- Sized to match modules
- Clear and black finish

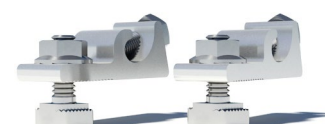
### CAMO



Bond modules to rails while staying completely hidden.

- Universal end-cam clamp
- Tool-less installation
- Fully assembled

### Grounding Lugs



Connect arrays to equipment ground.

- Low profile
- Single tool installation
- Mounts in any direction

## Attachments ☺

### FlashFoot2



Flash and mount XR Rails with superior waterproofing.

- Twist-on Cap eases install
- Wind-driven rain tested
- Mill and black finish

### Conduit Mount



Flash and mount conduit, strut, or junction boxes.

- Twist-on Cap eases install
- Wind-driven rain tested
- Secures 3/4" or 1" conduit

### Slotted L-Feet



Drop-in design for rapid rail attachment.

- Secure rail connections
- Slot for vertical adjusting
- Clear and black finish

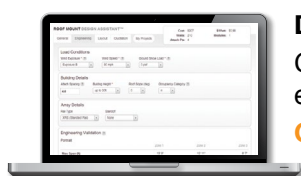
### Bonding Hardware



Bond and attach XR Rails to roof attachments.

- T & Square Bolt options
- Nut uses 7/16" socket
- Assembled and lubricated

## Resources



### Design Assistant

Go from rough layout to fully engineered system. For free.

[Go to IronRidge.com/design](https://IronRidge.com/design)



### NABCEP Certified Training

Earn free continuing education credits, while learning more about our systems.

[Go to IronRidge.com/training](https://IronRidge.com/training)



# Product data sheet

Specifications



Safety switch, general duty, non fusible, 60A, 2 pole, 10hp, 240VAC, NEMA 3R, bolt on provision

DU222RB

Product availability : Stock - Normally stocked in distribution facility

Price\* : 353.00 USD

## Main

Product	Single Throw Safety Switch
Duty Rating	General duty
Device Application	Residential
Disconnect Type	Non-fusible disconnect switch
Factory Installed Neutral	None
Phase	3 phase
Number of Poles	2
Current Rating	60 A
Voltage Rating	240 V AC
Enclosure Rating NEMA	NEMA 3R
Motor power hp	10 hp at 240 V AC 60 Hz for 1 phase motors

## Complementary

Mounting Type	Surface
Electrical Connection	Lugs
Wiring configuration	2 wires
Wire Size	AWG 12...AWG 3 aluminium AWG 14...AWG 3 copper
Tightening torque	35 lbf.in (3.95 N.m) 0.00...0.01 in² (2.08...5.26 mm²) (AWG 14...AWG 10) 35 lbf.in (3.95 N.m) (AWG 14...AWG 10) 45 lbf.in (5.08 N.m) 0.01 in² (8.37 mm²) (AWG 8) 45 lbf.in (5.08 N.m) 0.02...0.03 in² (12.3...21.12 mm²) (AWG 6...AWG 4) 50 lbf.in (5.65 N.m) 0.04 in² (26.67 mm²) (AWG 3)
Depth	3.75 in (95.25 mm)
Width	7.75 in (196.85 mm)
Height	9.63 in (244.60 mm)
Net Weight	16.98 lb(US) (7.7 kg)

## Environment

Certifications	UL listed file E2875
----------------	----------------------

\* Price is “List Price” and may be subject to a trade discount – check with your local distributor or retailer for actual price.

Disclaimer: This documentation is not intended as a substitute for and is not to be used for determining suitability or reliability of these products for specific user applications

Ordering and shipping details

Category	00106-D & DU SW,NEMA3R, 30-200A
Discount Schedule	DE1A
GTIN	785901491491
Returnability	Yes
Country of origin	MX

Packing Units

Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Height	5.30 in (13.462 cm)
Package 1 Width	7.20 in (18.288 cm)
Package 1 Length	10.00 in (25.4 cm)
Package 1 Weight	4.65 lb(US) (2.109 kg)
Unit Type of Package 2	PAL
Number of Units in Package 2	120
Package 2 Height	36.50 in (92.71 cm)
Package 2 Width	40.00 in (101.6 cm)
Package 2 Length	48.00 in (121.92 cm)
Package 2 Weight	610.00 lb(US) (276.691 kg)
Unit Type of Package 3	CAR
Number of Units in Package 3	5
Package 3 Height	10.70 in (27.178 cm)
Package 3 Width	10.20 in (25.908 cm)
Package 3 Length	23.50 in (59.69 cm)
Package 3 Weight	24.60 lb(US) (11.158 kg)

Offer Sustainability

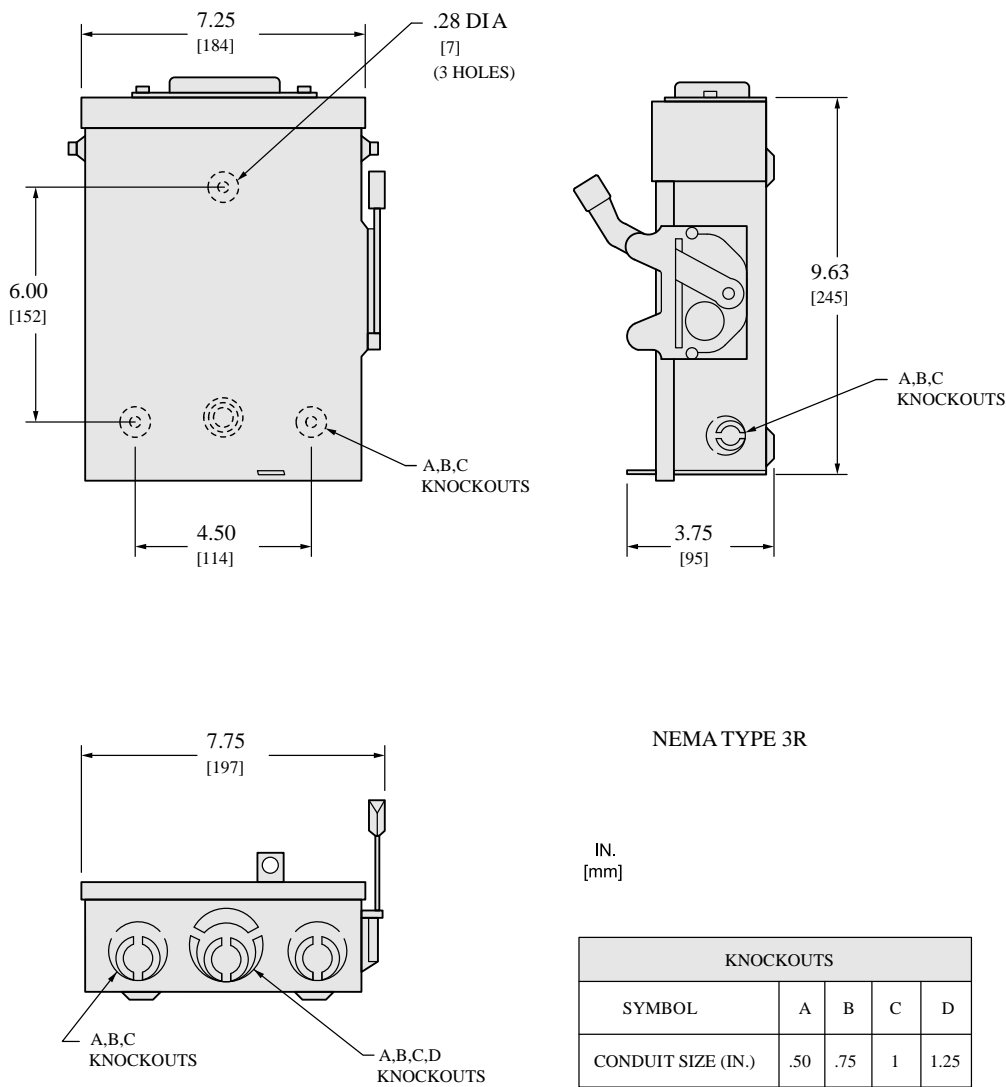
Sustainable offer status	Green Premium product
California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a>
REACH Regulation	<a href="#">REACH Declaration</a>
REACH free of SVHC	Yes
EU RoHS Directive	Compliant <a href="#">EU RoHS Declaration</a>
Toxic heavy metal free	Yes
Mercury free	Yes
China RoHS Regulation	<a href="#">China RoHS declaration</a> Pro-active China RoHS declaration (out of China RoHS legal scope)
RoHS exemption information	<a href="#">Yes</a>
Environmental Disclosure	<a href="#">Product Environmental Profile</a>
PVC free	Yes



Contractual warranty

Warranty	18 months
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Dimensions

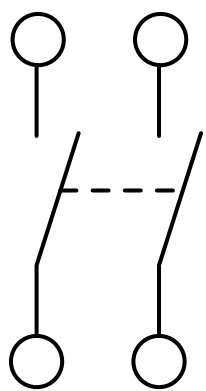


TOP OF NEMA TYPE 3R SWITCHES HAVE PROVISIONS FOR MAXIMUM 2 1/2" BO LT-ON HUB.  
ALL DIMENSIONS ARE APPROXIMATE. REFER TO TECHNICAL DRAWINGS AND DOCUMENTATION.



Wiring Diagram

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DU222RB

Recommended replacement(s)

## DU221RB

Safety switch, general duty, non fusible, 30A,  
2 poles, 3 hp, 240 VAC, NEMA 3R, bolt-on  
provision



### Main

Product	Single Throw Safety Switch
Duty Rating	General duty
Device Application	Residential
Disconnect Type	Non-fusible disconnect switch
Factory Installed Neutral	None
Phase	3 phase
Number of Poles	2
Current Rating	30 A
Voltage Rating	240 V AC
Enclosure Rating NEMA	NEMA 3R
Motor power hp	3 hp at 240 V AC 60 Hz for 1 phase motors

### Complementary

Mounting Type	Surface
Electrical Connection	Lugs
Wiring configuration	2 wires
Wire Size	AWG 14...AWG 6 copper AWG 12...AWG 6 aluminium
Tightening torque	30 lbf.in (3.39 N.m) 0.00...0.02 in <sup>2</sup> (2.08...13.3 mm <sup>2</sup> ) (AWG 14...AWG 6)
Depth	3.75 in (95.25 mm)
Width	7.75 in (196.85 mm)
Height	9.63 in (244.60 mm)
Net Weight	16.98 lb(US) (7.7 kg)

### Environment

Certifications	UL listed file E2875
----------------	----------------------

### Ordering and shipping details

Category	00106-D & DU SW,NEMA3R, 30-200A
Discount Schedule	DE1A
GTIN	785901490340
Returnability	Yes
Country of origin	MX

### Packing Units

Unit Type of Package 1	PCE
Number of Units in Package 1	1
Package 1 Height	5.40 in (13.716 cm)
Package 1 Width	7.80 in (19.812 cm)
Package 1 Length	9.90 in (25.146 cm)
Package 1 Weight	4.65 lb(US) (2.109 kg)
Unit Type of Package 2	PAL
Number of Units in Package 2	160
Package 2 Height	46.50 in (118.11 cm)



Package 2 Width	40.00 in (101.6 cm)
Package 2 Length	48.00 in (121.92 cm)
Package 2 Weight	814.00 lb(US) (369.224 kg)
Unit Type of Package 3	CAR
Number of Units in Package 3	5
Package 3 Height	10.80 in (27.432 cm)
Package 3 Width	10.50 in (26.67 cm)
Package 3 Length	23.80 in (60.452 cm)
Package 3 Weight	24.60 lb(US) (11.158 kg)

### Offer Sustainability

Sustainable offer status	Green Premium product
California proposition 65	WARNING: This product can expose you to chemicals including: Lead and lead compounds, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to <a href="http://www.P65Warnings.ca.gov">www.P65Warnings.ca.gov</a>
REACH Regulation	<a href="#">REACH Declaration</a>
REACH free of SVHC	Yes
EU RoHS Directive	Compliant <a href="#">EU RoHS Declaration</a>
Toxic heavy metal free	Yes
Mercury free	Yes
China RoHS Regulation	<a href="#">China RoHS Declaration</a>
RoHS exemption information	<a href="#">Yes</a>
Environmental Disclosure	<a href="#">Product Environmental Profile</a>
PVC free	Yes

### Contractual warranty

Warranty	18 months
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# Specifications

## Eaton BRP20B200R

Eaton BR main breaker  
loadcenter,200A,X5,Aluminum,Cover  
included,NEMA 3R,Metallic,10 kAIC,BR,40  
circuits,Single pole,20 spaces,Three-  
wire,Single-phase

### General specifications

<b>PRODUCT NAME</b>	Eaton BR main breaker loadcenter
<b>CATALOG NUMBER</b>	BRP20B200R
<b>UPC</b>	786689059255
<b>PRODUCT LENGTH/DEPTH</b>	29 in
<b>PRODUCT HEIGHT</b>	5.5 in
<b>PRODUCT WIDTH</b>	14.31 in
<b>PRODUCT WEIGHT</b>	19 lb
<b>WARRANTY</b>	10 year
<b>CERTIFICATIONS</b>	UL 67 UL 50



## Product specifications

TYPE	Plug-on neutral main circuit breaker loadcenter
AMPERAGE RATING	200 A
BUS MATERIAL	Aluminum
COVER	Cover included
MAIN CIRCUIT BREAKER	CSR
NUMBER OF CIRCUITS	40
NUMBER OF POLES	Single-pole
NUMBER OF SPACES	20
PHASE	Single-phase
MOUNTING	Combination
USED WITH	Type BR 1-inch breakers
VOLTAGE RATING	120/240 V
BOX SIZE	X5
ENCLOSURE	NEMA 3R
ENCLOSURE MATERIAL	Metallic
INTERRUPT RATING	25 kAIC
NUMBER OF WIRES	3
NEMA RATING	NEMA 3R

## Resources

### SPECIFICATIONS AND DATASHEETS

[Eaton Specification Sheet - BRP20B200R](#)

### WARRANTY GUIDES

[Eaton type BR circuit breaker limited warranty June 2024](#)

PROJECT NAME:

PROJECT NUMBER:

PREPARED BY:

DATE:



### Eaton Corporation plc

Eaton House  
30 Pembroke Road  
Dublin 4, Ireland  
Eaton.com

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RSTC Enterprises, Inc.  
2214 Heimstead Road  
Eau Claire, WI 54703  
715-830-9997



## **Outdoor Photovoltaic Enclosures**

Composition/Cedar Roof System

### **ETL listed and labeled**

Report # 3171411PRT-002 Revised May, 2018

- UL50 Type 3R, 11 Edition Electrical equipment enclosures
- CSA C22.2 No. 290 Nema Type 3R
- Conforms to UL 1741 Standard

### **0799 Series Includes:**

0799 - 2                      Wire size 2/0-14

0799 - 5                      Wire size 14-6

0799 - D                     Wire size 14-8

Models available in Grey, Black or Stainless Steel

### **Basic Specifications**

Material options:

- Powder coated, 18 gauge galvanized 90 steel (1,100 hours salt spray)
- Stainless steel

Process - Seamless draw (stamped)

Flashing - 15.25" x 17.25"

Height - 3"

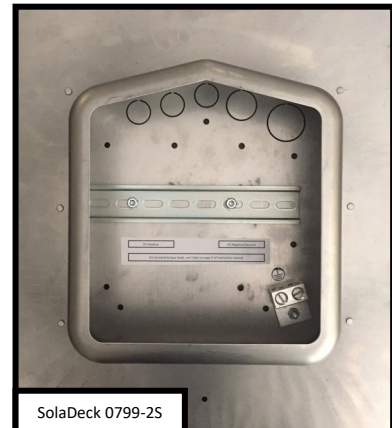
Cavity - 255 Cubic inches

### **Base Plate:**

- Fastened to base using toggle fastening system
- 5 roof deck knockouts
- Knockout sizes: (3) .5", (1) .75" and (1) 1"
- 8", 35mm slotted din rail
- Ground Block

Passthrough and combiner kits are available for either AC or DC applications.

## **0799 Series**



# aPower 2

## AC-coupled battery

Store solar generated power while the sun is shining. Use the stored energy when needed to lower electric bills. Run heavy loads such as air conditioners and water heaters as usual even during grid outages. Provide homeowner peace of mind by fully charging before severe weather events.

The system is off-grid ready, designed to operate independently from the main power grid to deliver reliable energy in any situation.

- ✓ 10 kW continuous / 15 kW peak for 10s
- ✓ 8 kW charge power
- ✓ 15 kWh AC<sup>1</sup> per unit, up to 225 kWh (15 units) per aGate
- ✓ 60 MWh warranty throughput

### PERFORMANCE SPECIFICATIONS

SKU	APR-10K15V2-US				
Model Number	aPower 2				
Nameplate / Certification	aPower X-20				
CEC Listing Name	aPower Xyyy				
Battery Chemistry	Lithium Iron Phosphate (LFP)				
Usable System Energy	15 kWh AC <sup>1</sup> per unit, up to 15 units per aGate				
Aggregate Throughput	60 MWh				
Real Power (charge)	8 kW continuous				
Nominal Output Power (AC)	2.5 kW	5 kW	6.7 kW	8.4 kW	10 kW <sup>2</sup>
Maximum Apparent Power	2.9 kVA	5.8 kVA	7.7 kVA	9.6 kVA	11.5 kVA
Maximum Continuous Current	12 A	24 A	32 A	40 A	48 A
Nominal AC Voltage	120 / 240 V, 120 / 208 V (single phase), 60 Hz				
Coupling	AC-coupled				
Phase	2 W+N+PE				
Round Trip Efficiency	90% <sup>1</sup>				
Maximum Short-Circuit Current Rating	10 kA				
Load Start Capability	Up to a 5-ton air conditioner				
Work Modes	Self-Consumption				
	Time of Use				
Noise Emission	Emergency Backup				
Noise Emission	30 dB(A) Typical / 45 dB(A) Maximum				
Flood Resistance	Up to 29" from the aPower 2 base				
User Interface	FranklinWH App				
Warranty	15 years <sup>3</sup>				

### COMPLIANCE INFORMATION

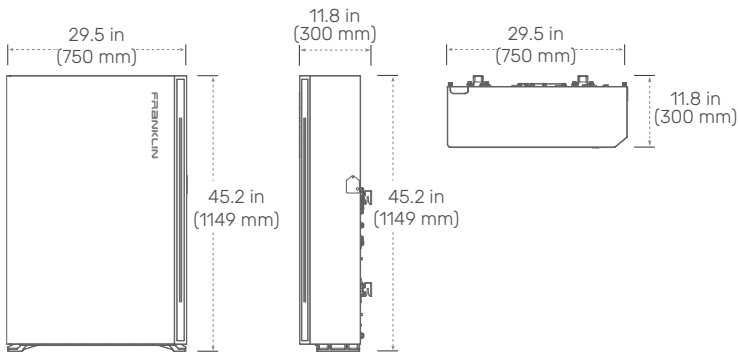
Certifications	UL 9540, UL 9540A, UL 1973, UL 1741, UL1741 SB, UL 1741 PCS, UL 60730-1, IEEE 1547, IEEE 1547.1, UN 38.3, CSA C22.2 No. 107.1
Seismic	AC 156, OSHPD, IEEE 693-2005 (high)
Environmental	California Proposition 65 RoHS Directive 2011 / EU
Emissions	FCC Part 15 Class B, ICES 003

1. At beginning of life, 3 kW charge/discharge power, 77 °F (25 °C).  
2. Refer to the installation manual and commissioning guide for proper wire and OCPD sizes.  
3. For more details, please refer to the FranklinWH System Limited Warranty for End Users available in the Documentation Center on the FranklinWH website.



### MECHANICAL SPECIFICATIONS

Dimensions (H × W × D)	45.2 in × 29.5 in × 11.8 in (1149 mm × 750 mm × 300 mm)
Weight, aPower 2 Complete	357 lb. (162 kg)
Weight, without Cover	335 lb. (152 kg)
Weight, Cover	22 lb. (10 kg)
Mounting	Wall or floor mount
Cooling	Natural air-cooled design



### ENVIRONMENTAL SPECIFICATIONS

Enclosure Type	Type 3R
Ingress Protection	IP56 (Wiring) IP67 (Battery Pack & Inverter)
Operating Temperature	-4 °F to 122 °F (-20 °C to 50 °C) Operates up to 131 °F (55 °C) at 5kW derated output
Operating Humidity (RH)	Up to 100% RH, condensing
Altitude	Maximum 9,843 ft (3,000 m)
Environment	Indoor and outdoor rated

**Compatibility Notice:** At launch, the aPower 2 is compatible with the aGate 1.3 only. Compatibility with earlier aGate and aPower versions is anticipated in Q2 2025.



# aGate

## Intelligent energy management system

The aGate serves as the controller for all home power sources by interconnecting solar, grid, batteries, and a standby generator to supply electricity to the home. It seamlessly transitions the home supply from grid power to backup power so that always-on appliances, such as the refrigerator and network router, will not be affected when the grid goes down.

The aGate can be installed at the service entrance, connected to the main load center, or used as a load center.



### Robust

- ✓ Micro-grid interconnect device (MID)
- ✓ EMS Integrated PV and grid metering
- ✓ UL1741 certified PCS function & 280A busbar to avoid Main Panel Upgrades
- ✓ 12-year limited warranty



### Hassle-free

- ✓ Precise control of electricity usage through Smart Circuits Module
- ✓ Standby generator integration via generator module
- ✓ Remarkable black start function ensures battery charge after a prolonged outage or extended trip
- ✓ Vehicle to loads (V2L) function to power essential home appliances during an emergency
- ✓ Commissioning through the aGate Wifi hotspot or Bluetooth



### Flexible

- ✓ Compatible with micro and string solar inverter
- ✓ Indoor and outdoor / wall-mounted



### Easy installation

- ✓ Built-in design Smart Circuits and Generator Modules
- ✓ Conduit entry options from the bottom, left, or right



PERFORMANCE SPECIFICATIONS

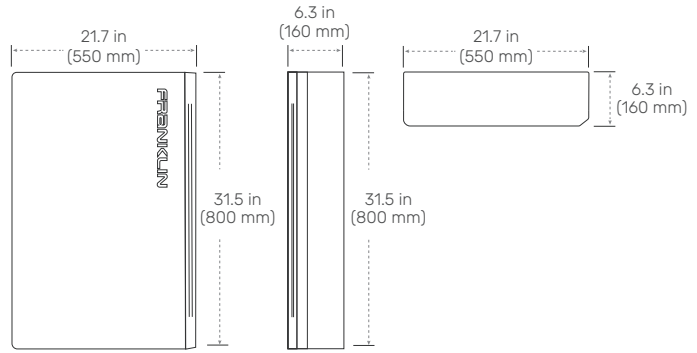
SKU	AGT-RIV2-US
Model Number	aGate X
Coupling	AC-coupled
Nominal AC Voltage	120 / 208 V, 120 / 240 V, 60 Hz
Phase	2 W+N+PE
Grid Input Over Current Protection Device	200 A Max
aPower Over Current Protection Device	125 A Max
Solar Input Over Current Protection Device	80 A Max
Backup Load Port Over Current Protection Device	200 A Max
Non-backup Load Port Over Current Protection Device	200 A Max
Generator Over Current Protection Device <sup>1</sup>	200 A Max
Smart Circuits Over Current Protection Device <sup>2</sup>	Opt. a 1 × 80 A Max @ 208 V / 240 V & 1 × 50 A Max @ 208 V / 240 V Opt. b 1 × 80 A Max @ 208 V / 240 V & 2 × 50 A Max @ 120 V
Maximum Supply Fault Current	22 kA
Busbar Rating	280 A
Work Modes	Self-Consumption, Time of Use, Emergency Backup
Communications	Ethernet / 4G / Wifi / Bluetooth
User Interface	FranklinWH App
Warranty	12-year limited
IEC Protective Class	Class I
Over voltage Category	Category II
AC Meter	+/- 0.5%

COMPLIANCE INFORMATION

Certifications	UL 1741, UL 1741 PCS, UL 67, UL 869A, UL 916, CAN / CSA C22.2 No. 107.1-16, CSA C22.2 No. 29, CSA C22.2 No. 0.19
Seismic	AC 156, OSHPD, IEEE 693-2005 (high)
Environmental	California Proposition 65 RoHS Directive 2011 / EU
Emissions	FCC Part 15 Class B, ICES 003

MECHANICAL SPECIFICATIONS

Dimensions (H × W × D)	31.5 in × 21.7 in × 6.3 in (800 mm × 550 mm × 160 mm)
Weight	38.6 lb (17.5 kg)
Mounting	Wall mount



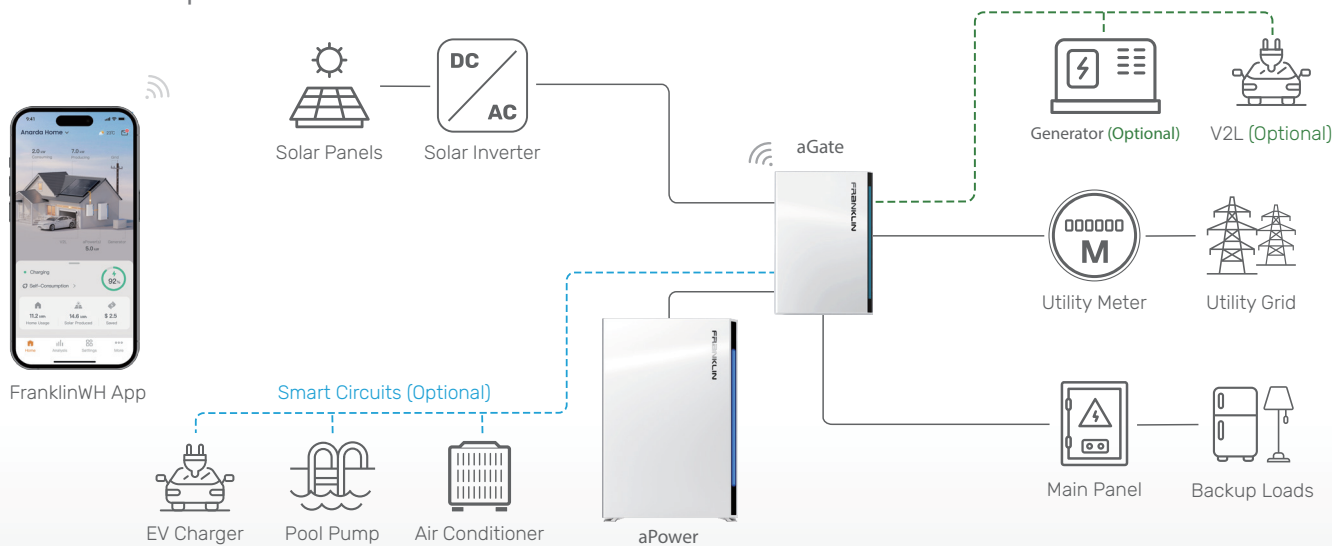
- 1. Generator Module is optional.
- 2. Smart Circuit Module is

ENVIRONMENTAL SPECIFICATIONS

Enclosure Type	NEMA Type 3R
Operating Temperature	-4°F to 122°F (-20°C to 50°C)
Operating Humidity (RH)	Up to 100% RH, condensing
Altitude	Maximum 9,843 ft (3,000 m)
Environment	Indoor and outdoor rated

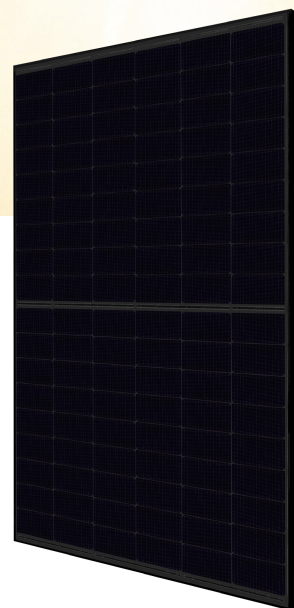
Franklin Home Power Solution

Whole Home Backup



**Address:** 1731 Technology Dr., Suite 530 San Jose, CA 95110 **Telephone:** +1 888-837-2655 **Email:** info@franklinwh.com **Website:** www.franklinwh.com  
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# TOPHiKu6 (All-Black)

N-type TOPCon Technology

445 W ~ 470 W

CS6.1-54TM-445 | 450 | 455 | 460 | 465 | 470H

## MORE POWER



Module power up to 470 W  
Module efficiency up to 23.0 %



Excellent anti-LeTID & anti-PID performance.  
Low power degradation, high energy yield



Lower temperature coefficient (Pmax):  $-0.29\%/^{\circ}\text{C}$ ,  
increases energy yield in hot climate



Lower LCOE & system cost

## MORE RELIABLE



Minimizes micro-crack impacts



Heavy snow load up to 8100 Pa,  
wind load up to 6000 Pa\*



**Industry Leading Product Warranty on Materials and Workmanship\***



**Linear Power Performance Warranty\***

**1<sup>st</sup> year power degradation no more than 1%  
Subsequent annual power degradation no more than 0.4%**

\*Subject to the terms and conditions contained in the applicable Canadian Solar Limited Warranty Statement. Also this 25-year limited product warranty is available only for products installed and operating on rooftops in certain regions.

## MANAGEMENT SYSTEM CERTIFICATES\*

ISO 9001:2015 / Quality management system  
ISO 14001:2015 / Standards for environmental management system  
ISO 45001: 2018 / International standards for occupational health & safety  
IEC62941: 2019 / Photovoltaic module manufacturing quality system

## PRODUCT CERTIFICATES\*

IEC 61215 / IEC 61730  
IEC 61701 / IEC 62716 / IEC 60068-2-68  
Take-e-way



\* The specific certificates applicable to different module types and markets will vary, and therefore not all of the certifications listed herein will simultaneously apply to the products you order or use. Please contact your local Canadian Solar sales representative to confirm the specific certificates available for your Product and applicable in the regions in which the products will be used.

**CSI Solar Co., Ltd.** is committed to providing high quality solar photovoltaic modules, solar energy and battery storage solutions to customers. The company was recognized as the No. 1 module supplier for quality and performance/price ratio in the IHS Module Customer Insight Survey. Over the past 22 years, it has successfully delivered over 100 GW of premium-quality solar modules across the world.

\* For detailed information, please refer to the Installation Manual.

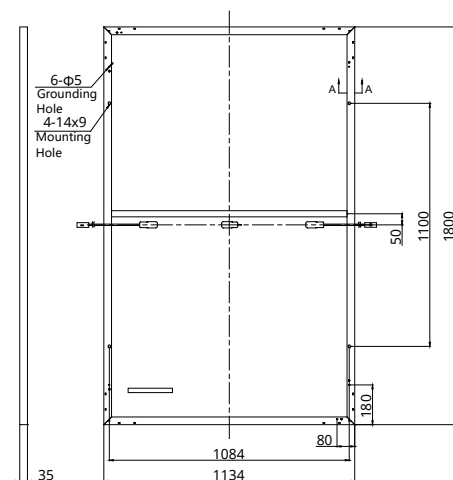
**Canadian Solar (USA) Inc.**

1350 Treat Blvd. Suite 500, Walnut Creek, CA 94597 | [www.csisolar.com/na](http://www.csisolar.com/na) | [service.ca@csisolar.com](mailto:service.ca@csisolar.com)

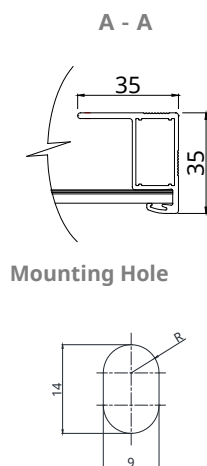


## ENGINEERING DRAWING (mm)

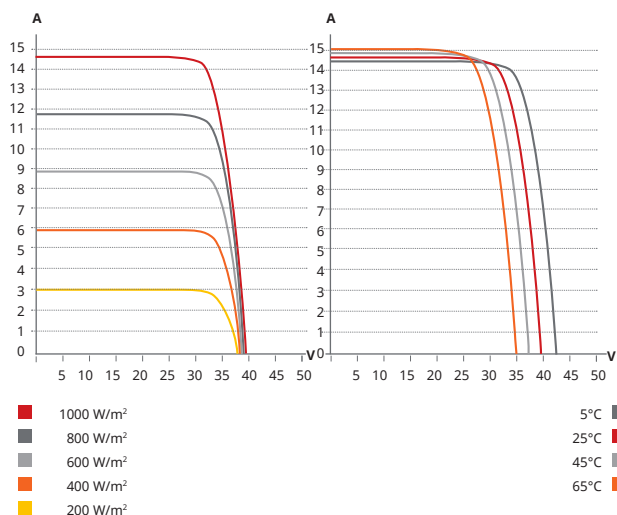
Rear View



Frame Cross Section



## CS6.1-54TM-455H / I-V CURVES



## ELECTRICAL DATA | STC\*

CS6.1-54TM	445H	450H	455H	460H	465H	470H
Nominal Max. Power (Pmax)	445 W	450 W	455 W	460 W	465 W	470 W
Opt. Operating Voltage (Vmp)	32.8 V	33.0 V	33.2 V	33.4 V	33.6 V	33.8 V
Opt. Operating Current (Imp)	13.59 A	13.66 A	13.72 A	13.78 A	13.85 A	13.91 A
Open Circuit Voltage (Voc)	38.7 V	38.9 V	39.1 V	39.3 V	39.5 V	39.7 V
Short Circuit Current (Isc)	14.48 A	14.55 A	14.61 A	14.69 A	14.77 A	14.86 A
Module Efficiency	21.8%	22.0%	22.3%	22.5%	22.8%	23.0%
Operating Temperature	-40°C ~ +85°C					
Max. System Voltage	1500V (IEC/UL) or 1000V (IEC/UL)					
Module Fire Performance	TYPE 1 (UL 61730 1500V) or TYPE 2 (UL 61730 1000V) or CLASS C (IEC 61730)					
Max. Series Fuse Rating	25 A					
Application Classification	Class A					
Power Tolerance	0 ~ + 10 W					

\* Under Standard Test Conditions (STC) of irradiance of 1000 W/m², spectrum AM 1.5 and cell temperature of 25°C.

## MECHANICAL DATA

Specification	Data
Cell Type	TOPCon cells
Cell Arrangement	108 [2 X (9 X 6)]
Dimensions	1800 × 1134 × 35 mm (70.9 × 44.6 × 1.38 in)
Weight	23 kg (50.7 lbs)
Front Cover	3.2 mm tempered glass with anti-ref-lective coating
Frame	Anodized aluminium alloy
J-Box	IP68, 3 bypass diodes
Cable	4 mm² (IEC), 12 AWG (UL)
Connector	T6, MC4, MC4-EVO2 or MC4- EVO2A
Cable Length	1550 mm (61.0 in) (+) / (Including Connector) 1100 mm (43.3 in) (-)
Per Pallet	31 pieces
Per Container (40' HQ)	744 pieces

## ELECTRICAL DATA | NMOT\*

CS6.1-54TM	445H	450H	455H	460H	465H	470H
Nominal Max. Power (Pmax)	335 W	339 W	343 W	347 W	351 W	354 W
Opt. Operating Voltage (Vmp)	30.9 V	31.1 V	31.3 V	31.5 V	31.7 V	31.9 V
Opt. Operating Current (Imp)	10.85 A	10.91 A	10.96 A	11.02 A	11.07 A	11.12 A
Open Circuit Voltage (Voc)	36.5 V	36.7 V	36.9 V	37.1 V	37.3 V	37.5 V
Short Circuit Current (Isc)	11.68 A	11.74 A	11.79 A	11.85 A	11.92 A	11.99 A

\* Under Nominal Module Operating Temperature (NMOT), irradiance of 800 W/m²-spectrum AM 1.5, ambient temperature 20°C, wind speed 1 m/s.

## TEMPERATURE CHARACTERISTICS

Specification	Data
Temperature Coefficient (Pmax)	-0.29 % / °C
Temperature Coefficient (Voc)	-0.25 % / °C
Temperature Coefficient (Isc)	0.05 % / °C
Nominal Module Operating Temperature	42 ± 3°C

## PARTNER SECTION



\* The specifications and key features contained in this datasheet may deviate slightly from our actual products due to the on-going innovation and product enhancement. CSI Solar Co., Ltd. reserves the right to make necessary adjustment to the information described herein at any time without further notice. Please be kindly advised that PV modules should be handled and installed by qualified people who have professional skills and please carefully read the safety and installation instructions before using our PV modules.



X-IQ-AM1-240-5-HDK  
X-IQ-AM1-240-5C-HDK  
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.

### 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
- Factory installed hold-down kit
- 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 IQ Combiner SKUs\*
- UL1741 Listed



5-year limited warranty



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

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IQC-5-5C-DSH-00007-6.0-EN-US-2024-09-30

# IQ Combiner 5/5C

MODEL NUMBER	
IQ Combiner 5 (X-IQ-AM1-240-5/ X-IQ-AM1-240-5-HDK)	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-AM1-240-5-HDK includes a factory installed hold-down kit compatible with all the circuit breakers mentioned in the <b>Accessories and Replacement Parts</b> section.
IQ Combiner 5C (X-IQ-AM1-240-5C / X-IQ-AM1-240-5C-HDK)	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. IQ-AM1-240-5C-HDK includes a factory installed hold-down kit compatible with all the circuit breakers mentioned in the <b>Accessories and Replacement Parts</b> section.
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 breakers 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-2 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). Not required for X-IQ-AM1-240-5-HDK/X-IQ-AM1-240-5C-HDK.
XA-COMMS2-PCBA-5	Replacement COMMS-KIT-2 printed circuit board (PCB) for IQ Combiner 5/5C
ELECTRICAL SPECIFICATIONS	
Rating	80 A
System voltage and frequency	120/240 VAC or 120/208 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

<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.

ACCESSORIES AND REPLACEMENT PARTS (NOT INCLUDED, ORDER SEPARATELY)		
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
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 <a href="#">Guide for local API</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 61010-1, CAN/CSA 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](#).

<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 T-Mobile and CELLMODEM-M1-06-AT-05 for AT&T)

## 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

## CT-200-SOLID



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

## CT-200-CLAMP



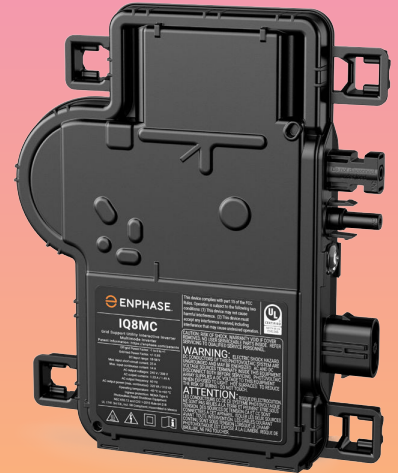
200 A clamp-style consumption and battery metering CT with <2.5% error rate (replacement SKU)

# Revision history

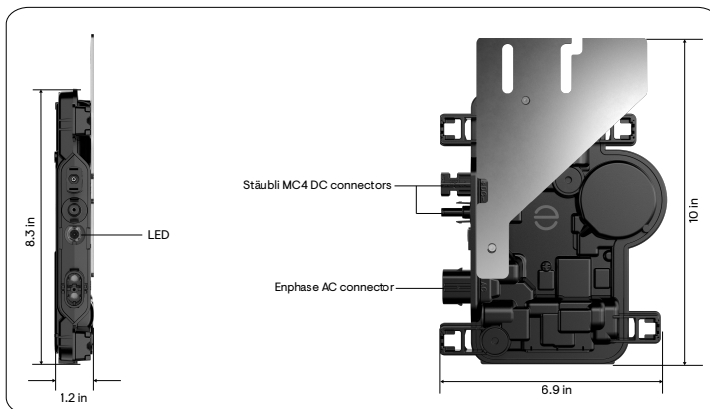
REVISION	DATE	DESCRIPTION
DSH-00007-6.0	September 2024	Included the X-IQ-AM1-240-5-HDK and X-IQ-AM1-240-5C-HDK SKU.
DSH-00007-5.0	July 2024	Updated the system voltage value and compliance. Updated Sprint plan to T-Mobile data plan.
DSH-00007-4.0	April 2024	Updated the UL smart mark.
DSH-00007-3.0	March 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.

# IQ8MC Microinverter

Our newest IQ8 Series Microinverters<sup>1,2,3</sup> are the industry's first microgrid-forming<sup>4</sup>, software-defined microinverters with split-phase power conversion capability to convert DC power to AC power efficiently.



Key specifications	IQ8MC-72-M-US @240 VAC	IQ8MC-72-M-US @208 VAC
Peak output power	330 VA	315 VA
Nominal grid voltage (L-L)	240 V split-phase (L-L), 180°	208 V single-phase (L-L), 120°
Nominal frequency	60 Hz	60 Hz
CEC weighted efficiency	97%	96.5%
Maximum input DC voltage	60 V	60 V
MPPT voltage range	25–45 V	25–45 V
Maximum module $I_{sc}$	20 A	20 A
Ambient temperature range	–40°C to 65°C (–40°F to 149°F)	



## Simple

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

## Reliable

- Produces power even when the grid is down<sup>4</sup>
- More than one million cumulative hours of testing
- Industry-leading limited warranty of up to 25 years
- 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 3<sup>rd</sup> Ed.)

<sup>1</sup> IQ8 Series Microinverters can be added to existing IQ7 systems on the same IQ Gateway only in the following grid-tied configurations: Solar Only or Solar + Battery (IQ Battery 3T/10T and IQ Battery 5P) without backup.

<sup>2</sup> IQ7 Series Microinverters cannot be added to a site with existing IQ8 Series Microinverters on the same gateway. Mixed system of IQ7 and IQ8 will not support IQ8-specific PCS features and grid-forming capabilities.

<sup>3</sup> IQ Microinverters ship with default settings that meet North America's IEEE 1547 interconnection standard requirements. Region-specific adjustments may be requested by an Authority Having Jurisdiction (AHJ) or utility representative, according to the IEEE 1547 interconnection standard. Use an IQ Gateway to make these changes during installation.

<sup>4</sup> Meets UL 1741 only when installed with IQ System Controller 2 or 3.

Input data (DC)	Units	IQ8MC-72-M-US	
Commonly used module pairings <sup>5</sup>	W	260–460	
Module compatibility	—	To meet compatibility, PV modules must be within the following max. input DC voltage and max. 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	25–45	
Operating range	V	18–58	
Min./Max. start voltage	V	22/58	
Max. input DC voltage	V	60	
Max. continuous operating DC current	A	14	
Max. input DC short-circuit current	A	25	
Max. module $I_{sc}$	A	20	
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 a maximum of 20 A per branch circuit.	
Output data (AC)	Units	IQ8MC-72-M-US @240 VAC	IQ8MC-72-M-US @208 VAC
Peak output power	VA	330	315
Max. continuous output power	VA	320	310
Nominal grid voltage (L-L)	V	240, split-phase (L-L), 180°	208, single-phase (L-L), 120°
Min./Max. grid voltage <sup>6</sup>	V	211–264	183–229
Max. continuous output current	A	1.33	1.49
Nominal frequency	Hz	60	
Extended frequency range	Hz	47–68	
AC short-circuit fault current over three cycles	Arms	2.70	
Max. units per 20 A (L-L) branch circuit <sup>7</sup>	—	12	10
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	%	97.4	97.2
CEC weighted efficiency	%	97.0	96.5
Nighttime power consumption	mW	33	25
Mechanical data	IQ8MC-72-M-US		
Ambient temperature range	–40°C to 65°C (–40°F to 149°F)		
Relative humidity range	4% to 100% (condensing)		

<sup>5</sup> No enforced DC/AC ratio.

<sup>6</sup> Nominal voltage range can be extended beyond nominal if required by the utility.

<sup>7</sup> Limits may vary. Refer to local requirements to define the number of microinverters per branch in your area.



Mechanical data	IQ8MC-72-M-US
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 lb)
Cooling	Natural convection – no fans
Approved for wet locations; Pollution degree	Yes; PD3
Enclosure	Class II double-insulated, corrosion-resistant polymeric enclosure
Environ. category; UV exposure rating	NEMA Type 6; outdoor
Compliance	IQ8MC-72-M-US
Certifications	CA Rule 21 (UL 1741-SA), UL 62109-1, IEEE 1547:2018 (UL 1741-SB 3 <sup>rd</sup> Ed.), 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.

# Components of the Enphase Energy System



## **IQ Battery**

All-in-one AC-coupled storage solution that integrates seamlessly with your solar energy system, providing reliable backup power and intelligent energy management for maximum performance and energy savings.



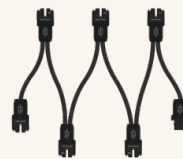
## **IQ System Controller**

The IQ System Controller connects the home to the grid power, IQ Batteries, generator and solar PV with microinverters.



## **IQ Combiner/IQ Gateway**

The IQ Combiner/IQ Gateway is a device that performs energy management, provides internet connectivity, and integrates with the IQ Series Microinverters to provide complete control and insights into the Enphase Energy System.



## **IQ Cable**

The IQ Cable is a continuous-length 12-AWG cable with pre-installed connectors for IQ Microinverters that support faster, simpler, and more reliable installations. The cable is handled like standard outdoor-rated electrical wire, allowing it to be cut, spliced, and extended as needed.

# Revision history

Revision	Date	Description
DSH-00049-5.0	December 2024	Updated information on backward compatibility with IQ7 Series Microinverters.
DSH-00049-4.0	February 2024	Added information about IEEE 1547 interconnection standard requirements.
DSH-00049-3.0	October 2023	Included NEC 2023 specification in the “Compliance” section.
DSH-00049-2.0	September 2023	Updated module compatibility information.
DSH-00049-1.0	May 2023	Preliminary release.