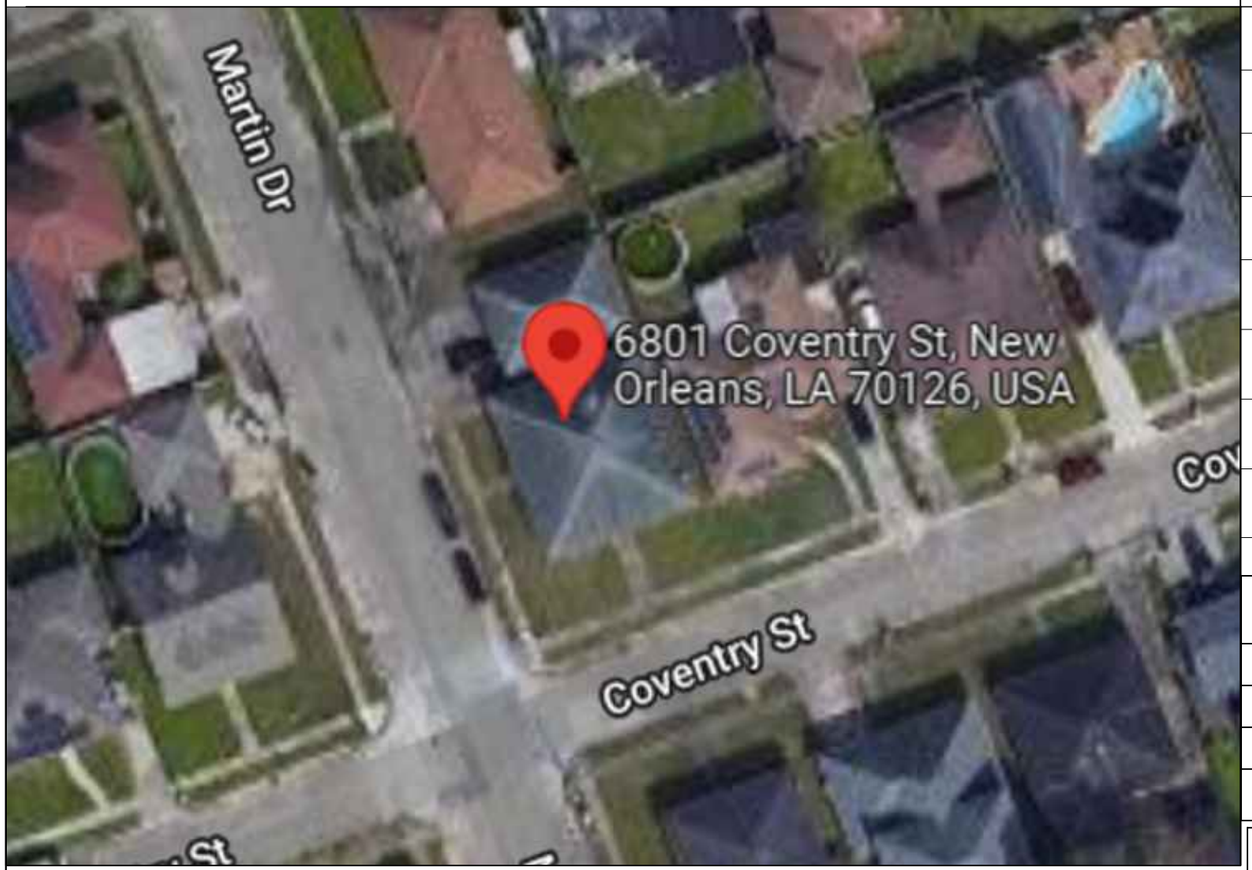
Vicinity Map



Construction notes

1.PHOTOVOLTAIC ARRAYS SHALL BE PROVIDED WITH DC GROUND-FAULT PROTECTION, NEC 690.5
2.ALL EQUIPMENT SHALL BE LISTED AND LABELED BY A RECOGNIZED ELECTRICAL TESTING LABORATORY AND INSTALLED PER THE LISTING REQUIREMENTS AND THE MANUFACTURERS INSTRUCTIONS. NEC 690.9 (A

3.DC GROUNDING ELECTRODE SHALL BE BONDED TO THE AC GROUNDING ELECTRODE AND THE CONDUCTOR SHALL BE NO SMALLER THAN THE LARGEST GROUNDING ELECTRODE CONDUCTOR, EITHER AC OR DC. NEC 690.47 C7
4.GROUNDING SHALL BE CONTINUOUS AND INSTALLED TO ALLOW FOR PANEL REMOVAL WITHOUT DISRUPTING CONTINUITY. ALL MODULE GROUND CONNECTIONS SHALL BE MADE IN ACCORDANCE WITH NEC 690.4 C
5.GROUNDING BUSHINGS ARE REQUIRED AROUND PRE-PUNCHED CONCENTRIC KNOCKOUTS ON THE DC SIDE OF THE SYSTEM. NEC 250.97
6.4.THE AC GROUNDING ELECTRODE CONDUCTOR SHALL BE SIZED ACCORDING TO NEC 250.66 AND TABLE 310.15B 6 FOR DWELLINGS, NEC 690.47 C
7.WORKING CLEARANCES AROUND THE EXISTING ELECTRICAL EQUIPMENT AND THE NEW ELECTRICAL EQUIPMENT WILL BE MAINTAINED IN ACCORDANCE WITH NEC 110.26 9. ALL PHOTOVOLTAIC SYSTEM CONDUCTORS WILL BE 90 DEGREE C RATED. NEC 690.31B, TABLE 31.16, TABLE 310.17
8.WHERE DC CONDUCTORS ARE RUN INSIDE THE BUILDING (OR ATTIC), THEY SHALL BE CONTAINED IN A METAL RACEWAY. NEC 690.31 (E)
9.ALL EXTERIOR CONDUIT, FITTINGS , AND BOXES SHALL BE RAIN-TIGHT AND APPROVED FOR USE IN WET LOCATIONS. NEC 314.15
10.ANY CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT. NEC 300.6 C1, 310.8 D
11.ALL METALLIC RACEWAYS AND EQUIPMENT SHALL BE BONDED AND ELECTRICALLY CONTINUOUS. NEC 250.90, 250.96
12.DC GROUNDING ELECTRODE CONDUCTOR SHALL BE SIZED ACCORDING TO NEC 250.166, NEC690.47B

System Information

12.58kW-DC-STC/9.86kW-AC

QTY	EQUIPMENT
34	Aptos DNA-120-MF26-370W
34	ENPHASE: IQ8PLUS-72-2-US (240V)
1	ENPHASE IQ COMBINER 3 W/INTEGRATED ENVOY MONITORING
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APPLICABLE CODES

2015	INTERNATIONAL RESIDENTIAL CODE
2015	INTERNATIONAL FIRE CODE
2014	NATIONAL ELECTRIC CODE

Project Information

SHARON OCTAVE

6801 COVENTRY ST, NEW ORLEANS, LA 70126, USA

UTILITY:Entergy

Customer DETAILS

Sharon Octave

6801 COVENTRY ST, NEW ORLEANS, LA 70126, USA

SYSTEM DETAILS

System Size:
12.58 kW
Modules:
34 APTOS DNA-120-MF26-370W
Inverter(s):
34 ENPHASE: IQ8PLUS-72-2-US (240V)
Other:
1 ENPHASE IQ COMBINER 3 W/INTEGRATED ENVOY MONITORING
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---- ----

STATE OF LOUISIANA
EDWARD R. ZABALA
License No. 37955
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

7/12/22

ALTERNATIVE SOLAR

COVER PAGE

NABCEP CERTIFIED PV Installation Professional

ABDUR RAHMAN
PV-042118-020-489

DRAWN BY
Duna Jenkins 7/12/22

SCALE: NTS

PV-1

Site Plan

NOTES

AHJ: ORLEANS PARISH

UTILITY: Entergy

ROOF TYPE: COMPOSITION SHINGLE

TOTAL ARRAY SQUARE FOOTAGE: 666.74 ft²

NO ENCROACHMENT INTO EASEMENTS BY NEW SCOPE OF WORK (SOLAR MODULES, RACK, RAIL, AND EQUIPMENT)

AC Disconnect Switched Visible Labeled Lockable is within 10ft of Existing Utility Meter

UTILITY METER #: 160 348 680
ESIID#: 1 82 529651

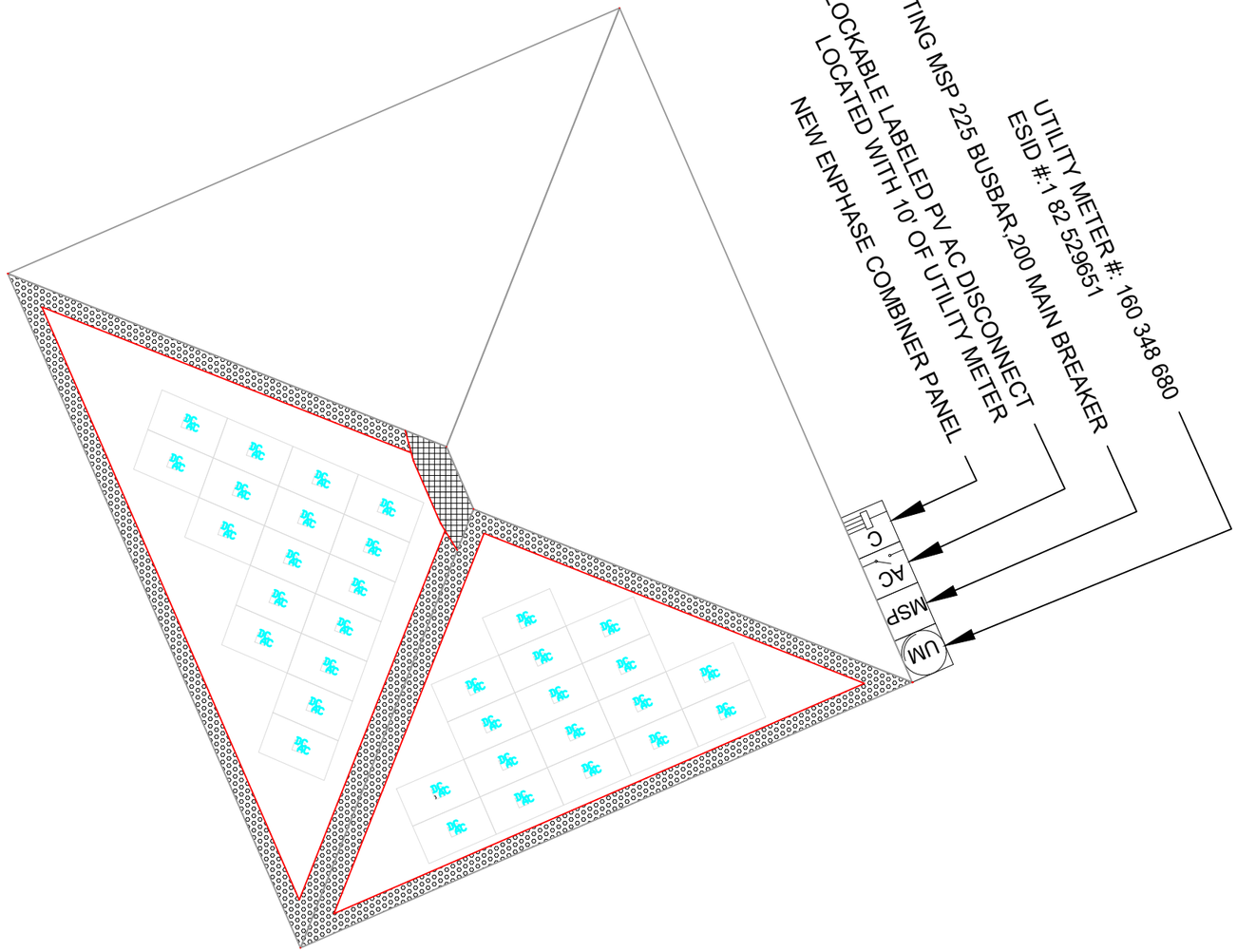
LEGEND

UM	UTILITY METER	AC NF	NON-FUSED AC DISCONNECT
PM	125A PV Meter	ACF	FUSED AC DISCONNECT
GM	GAS METER	INV	INVERTER
MSP	MAIN SERVICE PANEL	G	GENERATOR
C	COMBINER BOX	ATS	AUTOMATIC TRANSFER SWITCH
SP	SUB-PANEL	MTS	MANUAL TRANSFER SWITCH
DC	DC OPTIMIZER	A/C	A/C UNIT
B	BATTERY		18" FIRE SAFETY PATH IFC 605.11
	3' FIRE SAFETY PATH IFC 605.11		

ARRAY DETAILS

ARRAY	# OF MODULES	AZIMUTH	PITCH
1	17	160	20
2	17	250	20

N



Customer DETAILS

Sharon Octave

6801 COVENTRY ST, NEW ORLEANS, LA 70126, USA

SYSTEM DETAILS

System Size:

12.58 kW

Modules:

34 APTOS DNA-120-MF26-370W

Inverter(s):

34 ENPHASE: IQ8PLUS-72-2-US (240V)

Other:

1 ENPHASE IQ COMBINER 3 W/INTEGRATED ENVOY MONITORING

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ALTERNATIVE SOLAR

Site Plan

NABCEP CERTIFIED PV Installation Professional

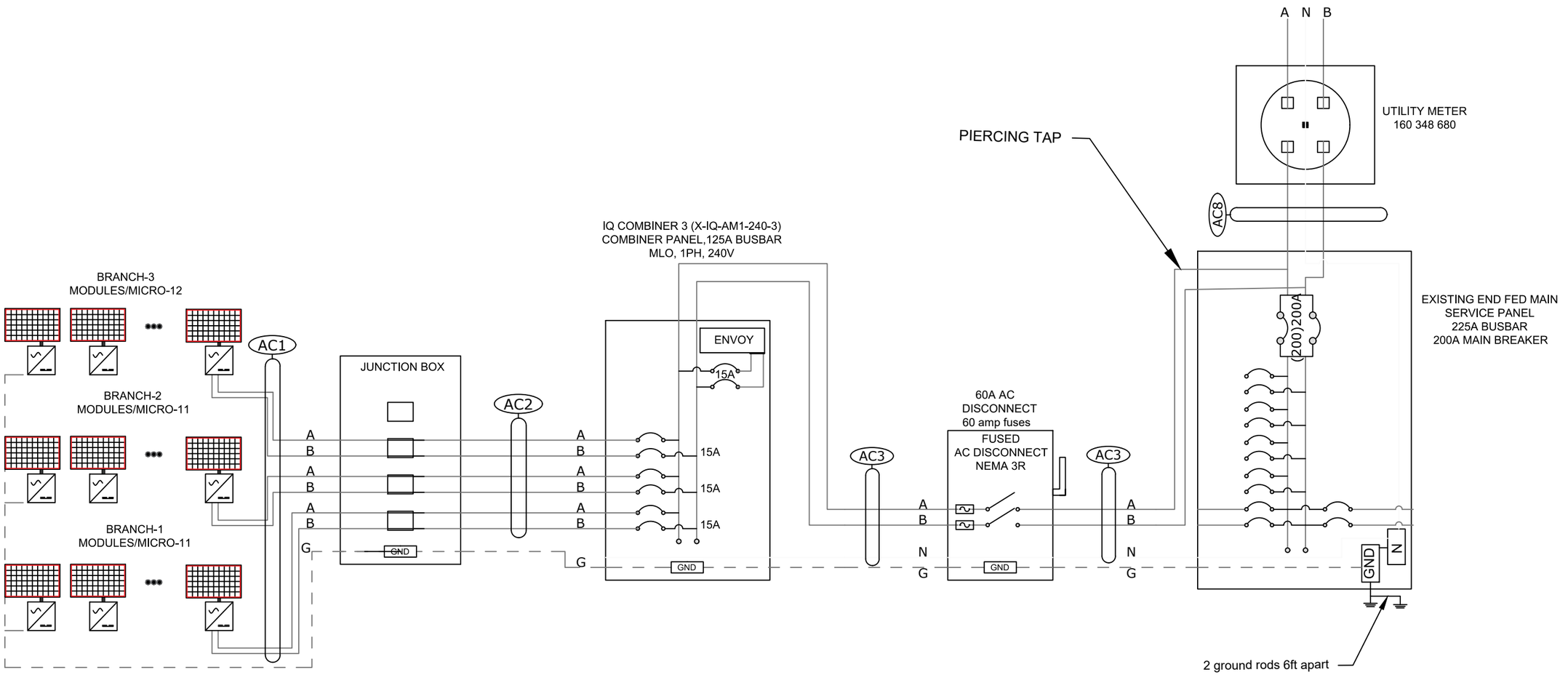
ABDUR RAHMAN
PV-042118-020-489

DRAWN BY
Duna Jenkins 7/12/22

SCALE: NTS

PV-3

Electrical Diagram



CONDUCTOR/CONDUIT TABLE

CONDUCTOR TABLE				CONDUIT TABLE	
TAG	QTY	TYPE	GROUND	SIZE	TYPE
AC1	6	#12 AWG Q CABLE	#6 AWG BARE CU	-	FREE AIR
AC2	6	#10 AWG THWN-2 CU	#6 AWG THWN-2 CU	1"	EMT
AC3	3	#6 AWG THWN-2 CU	#6 AWG THWN-2 CU	1"	EMT
AC4		#8 AWG THWN-2 CU	#6 AWG THWN-2 CU	1"	EMT
AC5		#8 AWG THWN-2 CU	#6 AWG THWN-2 CU	1"	EMT
AC6		#8 AWG THWN-2 CU	#10 AWG THWN-2 CU	1"	EMT
AC7		#6 AWG THWN-2 CU	#6 AWG THWN-2 CU	1"	EMT
AC8	2	#2/0 KCMIL THWN-2 CU	#4 AWG THWN-2 CU	2"	EMT

NOTES

(A) 60A SWITCHED VISIBLE LOCKABLE LABELED PV AC DISCONNECT LOCATED
WITHIN 10FT FROM UTILITY METER

MEETS UL2703 SYSTEM EQUIPMENT GROUNDING AND BONDING STANDARD

INVERTER(S) EQUIPPED WITH RAPID SHUTDOWN PER NEC 690.12

(B) UTILITY METER #: 160 348 680
ESIID#: 1 82 529651

BRANCH DETAILS

BRANCH	# OF MODULES	kW
BRANCH 1	11	4.07 kW
BRANCH 2	11	4.07 kW
BRANCH 3	12	4.44 kW

Customer DETAILS

Sharon Octave

6801 COVENTRY ST, NEW ORLEANS, LA 70126, USA

SYSTEM DETAILS

System Size:

12.58 kW

Modules:

34 APTOS DNA-120-MF26-370W

Inverter(s):

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ALTERNATIVE SOLAR

Electrical Diagram

NABCEP CERTIFIED PV Installation Professional

ABDUR RAHMAN
PV-042118-020-489

DRAWN BY
Duna Jenkins 7/12/22

SCALE: NTS

PV-4.1

CALCULATIONS

AC WIRE SIZING CHART

CIRCUIT ORGIN	CIRCUIT DESTINATION	CALLOUT	CONDUCTOR SPECIFICATIONS				MAX INV. OUTPUT (A) OR COMPONENT (A)	X	CONT.OPERATION 690.8(B)(1)	=	REQUIRED AMPACITY	CIRCUIT ENVIRONMENT	0.04% AVG HIGH TEMP (°C)	TEMP. ADDER 33° PER 310.15(b)(2)(a) If Less than 7/8" above roof	OPERATING TEMP (°C)	AMPACITY CORRECTION 310.15(B)(2)(a)	# OF UNGRND. COND.	AMPACITY CORRECTION 310.15(B)(3)(a)	COND. AMPACITY	X	TEMP. DEATING	X	CONDUIT FILL DERATING	=	CORRECTED AMPACITY	WIRE (RATED AT 90°)			TERMINAL (RATED AT 75°)		
			MATERIAL	TEMP RATING (°C)	TRADE SIZE AWG	AMPACITY @ 30°C PER 310.16																				REQUIRED AMPACITY	<	CORRECTED AMPACITY	REQUIRED AMPACITY	<	AMPACITY AT RATED 75° TERMINATION
MICRO INVERTER (Branch 1)	JUNCTION BOX	AC1	CU	90°	12	30	13.31	X	1.25	=	16.64	EXT WALL	37	0	37	0.88	FREE AIR	1.00	30	X	0.88	X	1.00	=	26.40	16.64	<	26.40	16.64	<	25
MICRO INVERTER (Branch 2)	JUNCTION BOX	AC1	CU	90°	12	30	13.31	X	1.25	=	16.64	EXT WALL	37	0	37	0.88	FREE AIR	1.00	30	X	0.88	X	1.00	=	26.40	16.64	<	26.40	16.64	<	25
MICRO INVERTER (Branch 3)	JUNCTION BOX	AC1	CU	90°	12	30	14.52	X	1.25	=	18.15	EXT WALL	37	0	37	0.88	FREE AIR	1.00	30	X	0.88	X	1.00	=	26.40	18.15	<	26.40	18.15	<	25
junction box (Branch 1)	Combiner	AC2	CU	90°	10	40	13.31	X	1.25	=	16.64	EXT WALL	37	0	37	0.88	2	1.00	40	X	0.88	X	1.00	=	35.20	16.64	<	35.20	16.64	<	35
junction box (Branch 2)	Combiner	AC2	CU	90°	10	40	13.31	X	1.25	=	16.64	EXT WALL	37	0	37	0.88	2	1.00	40	X	0.88	X	1.00	=	35.20	16.64	<	35.20	16.64	<	35
junction box (Branch 3)	Combiner	AC2	CU	90°	10	40	14.52	X	1.25	=	18.15	EXT WALL	37	0	37	0.88	2	1.00	40	X	0.88	X	1.00	=	35.20	18.15	<	35.20	18.15	<	35
combiner	interconnection	AC3	CU	90°	6	75	41.14	X	1.25	=	51.43	EXT WALL	37	0	37	0.88	2	1.00	75	X	0.88	X	1.00	=	66.00	51.43	<	66.00	51.43	<	65
		AC4	CU	90°	8	55	0.00	X	1.25	=	0.00	EXT WALL	37	0	37	0.88	4	0.80	55	X	0.88	X	0.80	=	38.72	0.00	<	38.72	0.00	<	50
		AC5	CU	90°	8	55	0.00	X	1.25	=	0.00	EXT WALL	37	0	37	0.88	3	1.00	55	X	0.88	X	1.00	=	48.40	0.00	<	48.40	0.00	<	50
		AC6	CU	90°	8	55	0.00	X	1.25	=	0.00	EXT WALL	37	0	37	0.88	3	1.00	55	X	0.88	X	1.00	=	48.40	0.00	<	48.40	0.00	<	50

SERVICE ENTRANCE AC WIRE SIZING CHART

CIRCUIT ORIGIN	CIRCUIT DESTINATION	CONDUCTOR SPECIFICATION		
		MATERIAL	SERVICE RATING (AMPS)	TRADE SIZE AWG/kcmil PER TABLE 310.12
AC8-METER	SERVICE PANEL	CU	200	2 / 0 CU

CONDUCTOR/CONDUIT TABLE

CONDUCTOR TABLE				CONDUIT TABLE	
TAG	QTY	TYPE	GROUND	SIZE	TYPE
AC1	6	#12 AWG Q CABLE	#6 AWG BARE CU	-	FREE AIR
AC2	6	#10 AWG THWN-2 CU	#6 AWG THWN-2 CU	1"	EMT
AC3	3	#6 AWG THWN-2 CU	#6 AWG THWN-2 CU	1"	EMT
AC4		#8 AWG THWN-2 CU	#6 AWG THWN-2 CU	1"	EMT
AC5		#8 AWG THWN-2 CU	#6 AWG THWN-2 CU	1"	EMT
AC6		#8 AWG THWN-2 CU	#10 AWG THWN-2 CU	1"	EMT
AC7	0	#6 AWG THWN-2 CU	#6 AWG THWN-2 CU	1"	EMT
AC8	2	#2/0 KCMIL THWN-2 CU	#4 AWG THWN-2 CU	2"	EMT

NOTES

BRANCH DETAILS

BRANCH	# OF MODULES	kW
BRANCH 1	11	4.07 kW
BRANCH 2	11	4.07 kW
BRANCH 3	12	4.44 kW

Customer DETAILS

Sharon Octave

6801 COVENTRY ST, NEW ORLEANS, LA 70126, USA

SYSTEM DETAILS

System Size:

12.58 kW

Modules:

34 APTOS DNA-120-MF26-370W

Inverter(s):

34 ENPHASE: IQ8PLUS-72-2-US (240V)

Other:

1 ENPHASE IQ COMBINER 3 W/INTEGRATED ENVOY MONITORING

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STATE OF LOUISIANA
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7/12/22

ALTERNATIVE SOLAR

WIRE DIAGRAM

NABCEP CERTIFIED PV Installation Professional

ABDUR RAHMAN
PV-042118-020-489

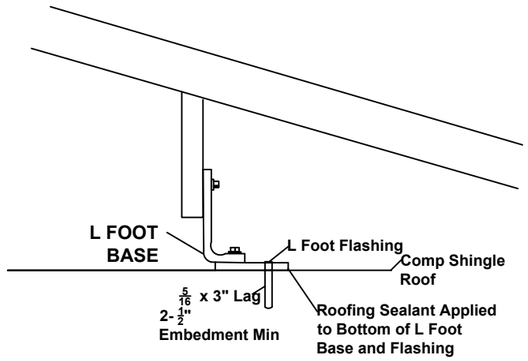
DRAWN BY
Duna Jenkins 7/12/22

SCALE: NTS

PV-4.2

STRUCTURAL DETAILS

ATTACHMENT DETAIL

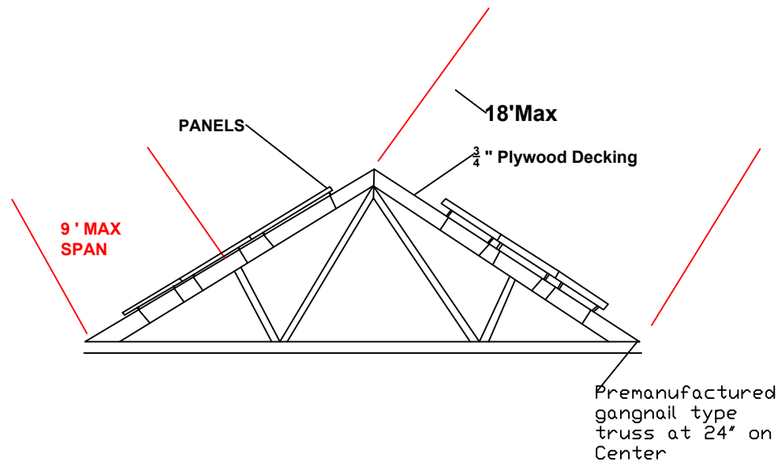


Spacing of L foot Mounts are Max of 6' Span

Roof Attachment Details

SCALE 1"=1'

Attachment Details 2



RACKING NOTES

1	MOUNTING DETAIL	IRONRIDGE: XR10
2	FLASHED ATTACHMENT	UNIRAC FLASHLOCKS

SPACING NOTES

A	MAX. ATTACHMENT SPACING	48" O.C
B	MAX. RAIL CANTILEVER	16"

OTHER NOTES

EXPOSURE CATEGORY	C
BASIC WIND SPEED	115MPH
GROUND SNOW LOAD	5 LB/FT^2

Customer DETAILS

Sharon Octave

6801 COVENTRY ST, NEW ORLEANS, LA 70126, USA

SYSTEM DETAILS

System Size:

12.58 kW

Modules:

34 APTOS DNA-120-MF26-370W

Inverter(s):

34 ENPHASE: IQ8PLUS-72-2-US (240V)

Other:

1 ENPHASE IQ COMBINER 3 W/INTEGRATED ENVOY MONITORING

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7/12/22

ALTERNATIVE SOLAR

NABCEP CERTIFIED PV Installation Professional

ABDUR RAHMAN
PV-042118-020-489

STRUCTURAL

DRAWN BY

Duna Jenkins 7/12/22

SCALE: NTS

PV-5

LABELING/PLACARDS

1.COMBINER BOX / CIRCUITS / CONDUIT COMBINER BOX / ENCLOSURES / EMT ENCLOSURES

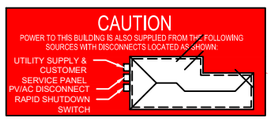
WARNING
ELECTRICAL SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION

NEC 706.15(C)(4) and NEC 690.13(B)
Roll: 596-00878 / 10-Pk: 596-00893
Metal 5-Pk: 596-00921

WARNING
TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

NEC 110.27(C) & OSHA 1910.145(f)(7)
Roll: 596-00499 / 10-Pk: 596-00664
Metal 5-Pk: 596-00832

2 BUILDING / STRUCTURE



NEC 705.10 & 690.56(A)(B)
Roll: 558-00350

3.DC DISCONNECT / BREAKER / RECOMBINER BOX

WARNING
ELECTRICAL SHOCK HAZARD
TERMINALS ON THE LINE AND LOAD SIDES MAY BE ENERGIZED IN THE OPEN POSITION
DC VOLTAGE IS ALWAYS PRESENT WHEN SOLAR MODULES ARE EXPOSED TO SUNLIGHT

NEC 690.13(B) / Roll: 596-00879
10-Pk: 596-00894 / Metal 5-Pk: 596-00920

PHOTOVOLTAIC
DC DISCONNECT

NEC 690.13(B)

PHOTOVOLTAIC DC DISCONNECT — Hand-writable 5-Pk: 596-00842
PHOTOVOLTAIC DC DISCONNECT — Engravable 5-Pk: 596-00858

RATED AC OPERATING CURRENT:	
MAX RATED AC OPERATING CURRENT:	
RATED AC OPERATING VOLTAGE	A
MAX RATED AC OPERATING VOLTAGE	240V
RATED SHORT CIRCUIT CURRENT	
MAXIMUM SYSTEM VOLTAGE	

FOR MARKING DC BACKUP SYSTEMS / Roll: 596-00240

MAXIMUM DC VOLTAGE
OF PV SYSTEM

NEC 690.53 / Roll: 596-01001 / 10-Pk:596-01009

4 EMT / CONDUIT RACEWAYS

SOLAR PV DC CIRCUIT
EVERY 10' ON CONDUIT AND ENCLOSURES
NEC 690.31(O)(2)

PHOTOVOLTAIC POWER SOURCE
EVERY 10' ON CONDUIT AND ENCLOSURES
NEC 690.31(D)(2)

5.INVERTER

WARNING
THE DISCONNECTION OF THE GROUNDED CONDUCTOR(S) MAY RESULT IN OVERVOLTAGE ON THE EQUIPMENT

NEC 690.31(E) / Roll: 596-09323
10-Pk: 596-09324 / Metal 5-Pk: 596-00924

PHOTOVOLTAIC AC DISCONNECT
RATED AC OUTPUT CURRENT: #####A
NOMINAL OPERATING AC VOLTAGE: 240V

NEC 690.54 / Roll: 596-00892 / 10-Pk: 596-00882

PHOTOVOLTAIC AC DISCONNECT — Hand-writable 5-Pk:596-00919
PHOTOVOLTAIC AC DISCONNECT — Engravable 5-Pk:596-00923

6.PRODUCTION / NET METER (BI-DIRECTIONAL)

WARNING DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

NEC 705.12(D)(3) & NEC 690.59 / Roll: 596-00495
10-Pk: 596-09665 / Metal 5-Pk: 596-00833

7 AC DISCONNECT / BREAKER / POINTS OF CONNECTION

PHOTOVOLTAIC
NEC 690.13(B) / Roll: 596-00237 / 10-Pk: 596-00853
DC DISCONNECT

PHOTOVOLTAIC AC DISCONNECT
RATED AC OUTPUT CURRENT: 41.14 A
NOMINAL OPERATING AC VOLTAGE: 240V

NEC 690.54 / Roll: 596-00892 / 10-Pk: 596-00882

PHOTOVOLTAIC AC DISCONNECT — Hand-writable 5-Pk: 596-00841
PHOTOVOLTAIC AC DISCONNECT — Engravable 5-Pk: 596-00857

PHOTOVOLTAIC AC DISCONNECT — Hand-writable 5-Pk:596-00919
PHOTOVOLTAIC AC DISCONNECT — Engravable 5-Pk:596-00923

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

NEC 705.12(B)(3)(3) / Roll: 596-01000
10-Pk: 596-01008

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

NEC 706.15 (C)(4) & NEC 690.13(B)
Roll: 596-00878 / 10-Pk: 596-00893
Metal 5-Pk: 596-00921

8 BREAKER PANEL / PULL BOXES

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

NEC 706.15 (c)(4) & NEC 690.13(B)
Roll: 596-00878 / 10-Pk: 596-00893
Metal 5-Pk: 596-0092

WARNING
TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

NEC 110.27(C) & OSHA 1910.145(f)(7)
Roll: 596-00499 / 10-Pk: 596-00664
Metal 5-Pk: 596-00832

PHOTOVOLTAIC AC DISCONNECT
RATED AC OUTPUT CURRENT: 60A
NOMINAL OPERATING AC VOLTAGE: 240V

NEC 690.54 / Roll: 596-00892 / 10-Pk: 596-00882

PHOTOVOLTAIC AC DISCONNECT — Hand-writable 5-Pk:596-00919
PHOTOVOLTAIC AC DISCONNECT — Engravable 5-Pk:596-00923

9 MAIN SERVICE DISCONNECT

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

NEC 706.15 (c)(4) & NEC 690.13(B)
Roll: 596-00878 / 10-Pk: 596-00893
Metal 5-Pk: 596-0092

WARNING
TURN OFF PHOTOVOLTAIC AC DISCONNECT PRIOR TO WORKING INSIDE PANEL

NEC 110.27(C) & OSHA 1910.145(f)(7)
Roll: 596-00499 / 10-Pk: 596-00664
Metal 5-Pk: 596-00832

WARNING
SINGLE 120-VOLT SUPPLY DO NOT CONNECT MULTIWIRE BRANCH CIRCUITS

NEC 710.15(C) & 692.9 (C) / Roll: 596-00591
10-Pk: 596-00699 / Metal 5-Pk: 596-00837

DO NOT DISCONNECT UNDER LOAD

NEC 690.15 (B) & NEC 690.33(D)(2)
Roll: 596-00244 / 10-Pk: 596-00671

CAUTION
PHOTOVOLTAIC SYSTEM CIRCUIT IS BACKFED

NEC 705.12(D) & NEC 690.59
Roll: 596-00587 / 10-Pk: 596-00666
Metal 5-Pk: 596-00834

WARNING DUAL POWER SOURCE
SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

NEC 705.12(C) & NEC 690.59 / Roll: 596-00495
10-Pk: 596-00665 / Metal 5-Pk: 596-00833

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

NEC 705.12 (B)(3)(2) / Roll: 596-00883
10-Pk: 596-00884 / Metal 5-Pk: 596-00917

MAIN PHOTOVOLTAIC SYSTEM DISCONNECT

NEC 690.13(B) / Roll: 596-00243
10-Pk: 596-00675 / Metal 5-Pk: 596-00860

10.Main Service Disconnect / Utility Meter

MAIN PHOTOVOLTAIC SYSTEM DISCONNECT

NEC 690.13(B) / Roll: 596-00243
10-Pk: 596-00675 / Metal 5-Pk: 596-00860

11.ENERGY STORAGE SYSTEMS

NOMINAL ESS AC VOLTAGE	
MAX RATED ESS DC VOLTAGE	
RATED AC OPERATING VOLTAGE	#####A
AVAILABLE FAULT CURRENT DRIVED FROM THE ESS	240V
DATE CALCULATION PERFORMED	

NEC 706.15(C) / Roll:596-00997 / 10-Pk: 596-01005

WARNING
FUEL CELL POWER SYSTEM CONTAINS ENERGY STORAGE DEVICES

NEC 692.56 / Roll: 596-01002 / 10-Pk: 596-01010

ENERGY STORAGE SYSTEM DISCONNECT

NEC 706.15(C) / Roll: 596-01004 / 10-Pk: 596-01041

Customer DETAILS

Sharon Octave

6801 COVENTRY ST, NEW ORLEANS, LA 70126, USA

SYSTEM DETAILS

System Size:
12.58 kW
Modules:
34 APTOS DNA-120-MF26-370W
Inverter(s):
34 ENPHASE: IQ8PLUS-72-2-US (240V)
Other:
1 ENPHASE IQ COMBINER 3 W/INTEGRATED ENVOY MONITORING
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STATE OF LOUISIANA
EDWARD R. ZABALA
License No. 37955
PROFESSIONAL ENGINEER IN CIVIL ENGINEERING

7/12/22

ALTERNATIVE SOLAR

LABELS/ PLACARDS

NABCEP CERTIFIED PV Installation Professional

ABDUR RAHMAN
PV-042118-020-489

DRAWN BY
Duna Jenkins 7/12/22

SCALE: NTS

PV-7

DNA™ 120

Solar for Innovators

Residential I Commercial

Designed & Engineered in Silicon Valley

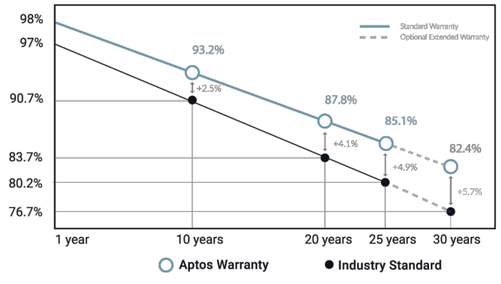
370W I 365W I 360W

Our DNA™ Split Cell Series impressively combines advanced solar technologies to maximize performance. Our patented Dual Nano Absorber (DNA™) Technology allows the panel to operate at high-efficencies in extreme temperatures. Contact our sales team today to learn more about our line of high-efficienty solar panels.

- Patented DNA™ technology boosts power performance & module efficiency
- Advanced split cell technology with 9 ultra-thin busbars allows for less resistance and more photon capture
- Ideal solution for applications affected by shading
- All-black design for pristine aesthetics
  No excessive silver bussing or ribbons
- Robust product design is reslient in extreme weather. Up to 5400 Pa snow load and 210 mph wind speeds

30 Year Warranty | 3X IEC Standards | RETC Top Performer

Linear Performance Warranty

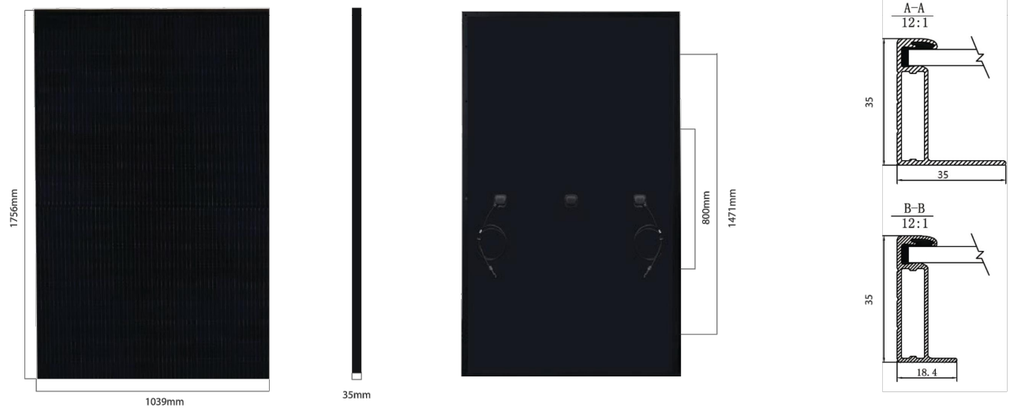


aptos solar technology

3140 De La Cruz Blvd., Ste 200
Santa Clara, CA 95054
wwww.aptossolar.com
info@aptossolar.com

DNA™ 120

Solar for Innovators



Electrical Specifiactions

	DNA-120-MF26-360W	DNA-120-MF26-365W	DNA-120-MF26-370W
STCrated Output P_{mpp} (W)	360W	365W	370W
Module Efficiency	19.73%	20.01%	20.29%
Open Circuit Voltage V_{VOC} (V)	40.6	40.7	40.8
Short Circiut Current I_{SC} (A)	11.24	11.36	11.51
Rated Voltage V_{mmp} (V)	33.8	33.96	34.06
Rated Voltage I_{mmp} (A)	10.66	10.75	10.87

Standard Test Conditions for front-face of panel: 1000 W/m², 25°C, measurement uncertainty ≤3%

Temperature Coefficients

Temperature Coefficients P_{mmp}	-0.36%
Temperature Coefficients I_{sc}	+0.05%/°C
Temperature Coefficients V_{OC}	-0.29%/°C
Normal Operating Cell Temperature (NOCT)	44°C

Test Operating Conditions

Maximum Series Fuse	20A
Maximum System Voltage	1,000 VDC (UL&IEC)
Maximum Load Capacity (Per UL 1703)	5400 PA Snow Load / 210mph Wind Rating
Fire Performance Class	Class C/Type 1

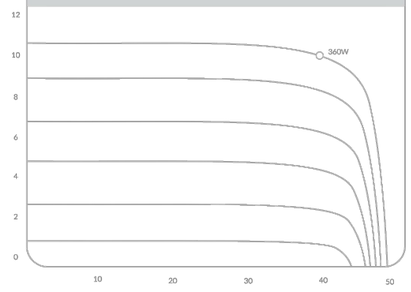
Packaging Configuration

Number of Modules per Pallet	30
Number of Pallets per 40ft. Container	26
Pallet Dimensions	1770 X 1090 X 2365
Pallet Weight (kg)	640
Container Weight (kg)	16640

Mechanical Properties

Cell Type	Monocrystalline
Glass	3.2mm, anti-reflection coating, high transmission, low iron, tempered glass
Frame	Anodized Aluminum Alloy
Junction Box	IP68
Dimensions	1756 X 1039 X 35mm
Output Cable	4mm2 (EU)12AWG,39.37in.(1200mm)
Weight	45.19lbs.(20.5kg)
Cable Length	1200mm
Encapsulant	POE

I-V Curve



Certifications

UL61730-1, UL61730-2

Aptos Solar Technology reserves the right to make specification changes without notice

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7/12/22

ALTERNATIVE SOLAR

MODULE SPECS

NABCEP CERTIFIED PV Installation Professional

ABDUR RAHMAN
PV-042118-020-489

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Duna Jenkins 7/12/22

SCALE: NTS

Q-1

ENPHASE.

DATA SHEET

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.

Enphase 25 year limited warranty

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 IQ8 Series Microinverters using the included Q-DCC-2 adapter cable with plug-n-play MC4 connectors.

UL CERTIFIED SAFETY

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-SA) requirements

IQ8SP-DS-0002-01-EN-US-2022-03-17

* Only when installed with IQ System Controller 2, meets UL 1741.
** IQ8 and IQ8Plus supports split phase, 240V installations only.

IQ8 and IQ8+ Microinverters

INPUT DATA (DC)		IQ8-60-2-US	IQ8PLUS-72-2-US
Commonly used module pairings[1]	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[2] [module Isc]	A	15	
Overvoltage class DC port		II	
DC port backfeed current	mA	0	
PV array configuration		1x1 Ungrounded array; No additional DC side protection required; AC side protection requires max 20A per branch circuit	
OUTPUT DATA (AC)		**IQ8-60-2-US**	**IQ8PLUS-72-2-US**
Peak output power	VA	245	300
Max continuous output power	VA	240	290
Nominal (L-L) voltage/range[3]	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[4]		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		MC4	
Dimensions (HxWxD)		212 mm (8.3") x 175 mm (6.9") x 30.2 mm (1.2")	
Weight		1.08 kg (2.38 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-SA), 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.

IQ8SP-DS-0002-01-EN-US-2022-03-17

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7/12/22

ALTERNATIVE SOLAR

INVERTER SPECS

NABCEP CERTIFIED PV Installation Professional

ABDUR RAHMAN
PV-042118-020-489

DRAWN BY
Duna Jenkins 7/12/22

SCALE: NTS

Q-2

Datasheet

IRONRIDGE

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.

Datasheet

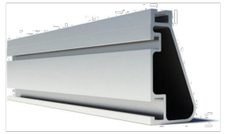
XR Rails

XR10 Rail

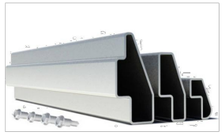

A low-profile mounting rail for regions with light snow.
- 6' spanning capability
- Moderate load capability
- Clear and black finish

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

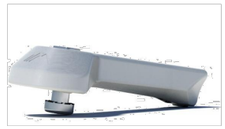
Clamps & Grounding

UFOs

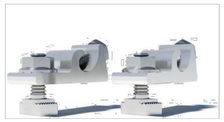

Universal Fastening Objects bond modules to rails.
- Fully assembled & lubed
- Single, universal size
- Clear and black finish

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

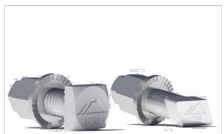

Flash and mount XR Rails with superior waterproofing.
- Twist-on Cap eases install
- Wind-driven rain tested
- Mill and black finish

Conduit Mount


Flash and mount conduit, strut, or junction boxes.
- Twist-on Cap eases install
- Wind-driven rain tested
- Secures ¾" 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

NABCEP Certified Training
Earn free continuing education credits, while learning more about our systems.
Go to IronRidge.com/training

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DRAWN BY
Duna Jenkins 7/12/22

SCALE: NTS

Q-4

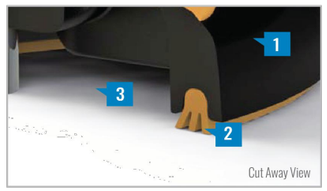
FLASH LOC

UNIRAC
BETTER SOLAR STARTS HERE

FLASHLOC is the ultimate attachment for composition shingle and rolled comp roofs. The all-in-one mount installs fast — no kneeling on hot roofs to install flashing, no prying or cutting shingles, no pulling nails. Simply drive the lag bolt and inject sealant into the base. **FLASH**LOC's patented TRIPLE SEAL technology preserves the roof and protects the penetration with a permanent pressure seal. Kitted with lag bolts, sealant, and hardware for maximum convenience. Don't just divert water, **LOC it out!**

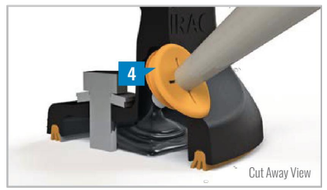
PROTECT THE ROOF

Install a high-strength waterproof attachment without lifting, prying or damaging shingles.



LOC OUT WATER

With an outer shield 1 contour-conforming gasket 2 and pressurized sealant chamber 3 the Triple-Loc Seal delivers a 100% waterproof connection.



HIGH-SPEED INSTALL

Simply drive lag bolt and inject sealant into the port 4 to create a permanent pressure seal.

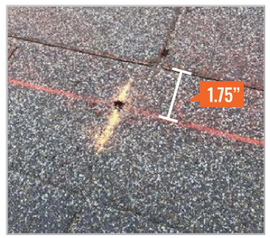
FASTER INSTALLATION. 25-YEAR WARRANTY.

FOR QUESTIONS OR CUSTOMER SERVICE VISIT UNIRAC.COM OR CALL (505) 248-2702

FLASH LOC

INSTALLATION GUIDE

UNIRAC
BETTER SOLAR STARTS HERE



PRE-INSTALL

Snap chalk lines for attachment rows. On shingle roofs, snap lines 1-3/4" below upslope edge of shingle course. Locate rafters and mark attachment locations.

At each location, drill a 7/32" pilot hole. Clean roof surface of dirt, debris, snow, and ice, then fill pilot hole with sealant.

NOTE: Space mounts per racking system install specifications. When down pressure is ≥34 psf, span may not exceed 2 ft.

STEP 1: SECURE

Place **FLASH**LOC over pilot hole with lag on down-slope side. Align indicator marks on sides of mount with chalk line. Pass included lag bolt and sealing washer through **FLASH**LOC into pilot hole. Drive lag bolt until mount is held firmly in place.

NOTE: The EPDM in the sealing washer will expand beyond the edge of the metal washer when proper torque is applied.

STEP 2: SEAL

Insert tip of UNIRAC provided sealant into port. Inject until sealant exits both vents.

Continue array installation, attaching rails to mounts with provided T-bolts.

NOTE: When **FLASH**LOC is installed over gap between shingle or tabs or vertical joints, fill gap/joint with sealant between mount and upslope edge of shingle course.

Use only provided sealant.

FASTER INSTALLATION. 25-YEAR WARRANTY.

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SCALE: NTS

Q-5

Data Sheet
Enphase Networking

Enphase IQ Combiner 3-ES/3C-ES

X-IQ-AM1-240-3-ES
X-IQ-AM1-240-3C-ES

The **Enphase IQ Combiner 3-ES/3C-ES**™ with Enphase IQ Envoy™ and integrated LTE-M1 cell modem (included only with IQ Combiner 3C-ES) consolidates interconnection equipment into a single enclosure and streamlines PV and storage installations by providing a consistent, pre-wired solution for residential applications. It offers up to four 2-pole input circuits and Eaton BR series busbar assembly.

X-IQ-AM1-240-3C-ES

X-IQ-AM1-240-3-ES

Smart

- Includes IQ Envoy for communication and control
- Includes LTE-M1 cell modem (included only with IQ Combiner 3C-ES)
- Includes solar shield to match Ensemble esthetics and deflect heat
- Flexible networking supports Wi-Fi, Ethernet, or cellular
- Optional AC receptacle available for PLC bridge
- Provides production metering and consumption monitoring

Simple

- Reduced size from IQ Combiner+ (X-IQ-AM1-240-2)
- Centered mounting brackets support single stud mounting
- Supports back and side conduit entry
- Up to four 2-pole branch circuits for 240 VAC plug-in breakers (not included)
- 80 A total PV or storage branch circuits

Reliable

- Durable NRTL-certified NEMA type 3R enclosure
- Five-year limited warranty
- Two years labor reimbursement program coverage included for both the Combiner SKU's
- UL listed

UL LISTED

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE

Enphase IQ Combiner 3-ES / 3C-ES

MODEL NUMBER	
IQ Combiner 3-ES (X-IQ-AM1-240-3-ES)	IQ Combiner 3-ES with Enphase IQ Envoy printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes a silver solar shield to match the Encharge storage system and Enpower smart switch and to deflect heat.
IQ Combiner 3C-ES (X-IQ-AM1-240-3C-ES)	IQ Combiner 3C-ES with Enphase IQ Envoy printed circuit board for integrated revenue grade PV production metering (ANSI C12.20 +/- 0.5%) and consumption monitoring (+/- 2.5%). Includes Enphase Mobile Connect LTE-M1 (CELLMODEM-M1), a plug-and-play industrial-grade cell modem for systems up to 60 microinverters. (Available in the US, Canada, Mexico, Puerto Rico, and the US Virgin Islands, where there is adequate cellular service in the installation area.) Includes a silver solar shield to match the Encharge storage system and Enpower smart switch and to deflect heat.
ACCESSORIES and **REPLACEMENT PARTS**	(not included, order separately)
Ensemble Communications Kit (COMMS-CELLMODEM-M1)	Includes COMMS-KIT-01 and CELLMODEM-M1 with 5-year data plan for Ensemble sites
Circuit Breakers BRK-10A-2-240 BRK-15A-2-240 BRK-20A-2P-240	Supports Eaton BR210, BR215, BR220, BR230, BR240, BR250, and BR260 circuit breakers. Circuit breaker, 2 pole, 10A, Eaton BR210 Circuit breaker, 2 pole, 15A, Eaton BR215 Circuit breaker, 2 pole, 20A, Eaton BR220
EPLC-01	Power line carrier (communication bridge pair), quantity - one pair
XA-SOLARSHIELD-ES	Replacement solar shield for Combiner 3-ES / 3C-ES
XA-PLUG-120-3	Accessory receptacle for Power Line Carrier in IQ Combiner 3-ES / 3C-ES (required for EPLC-01)
XA-ENV-PCBA-3	Replacement IQ Envoy printed circuit board (PCB) for Combiner 3-ES / 3C-ES
ELECTRICAL SPECIFICATIONS	
Rating	Continuous duty
System voltage	120/240 VAC, 60 Hz
Eaton BR series busbar rating	125 A
Max. continuous current rating	65 A
Max. continuous current rating (input from PV/storage)	64 A
Max. fuse/circuit rating (output)	90 A
Branch circuits (solar and/or storage)	Up to four 2-pole Eaton BR series Distributed Generation (DG) breakers only (not included)
Max. total branch circuit breaker rating (input)	80A of distributed generation / 95A with IQ Envoy breaker included
Envoy breaker	10A or 15A rating GE/Siemens/Eaton included
Production metering CT	200 A solid core pre-installed and wired to IQ Envoy
Consumption monitoring CT (CT-200-SPLIT)	A pair of 200 A split core current transformers
MECHANICAL DATA	
Dimensions (WxHxD)	37.5 x 49.5 x 16.8 cm (14.75" x 19.5" x 6.63"). Height is 21.06" (53.5 cm) with mounting brackets.
Weight	7.5 kg (16.5 lbs)
Ambient temperature range	-40° C to +46° C (-40° to 115° F)
Cooling	Natural convection, plus heat shield
Enclosure environmental rating	Outdoor, NRTL-certified, NEMA type 3R, polycarbonate construction
Wire sizes	• 20 A to 50 A breaker inputs: 14 to 4 AWG copper conductors • 60 A breaker branch input: 4 to 1/0 AWG copper conductors • Main lug combined output: 10 to 2/0 AWG copper conductors • Neutral and ground: 14 to 1/0 copper conductors Always follow local code requirements for conductor sizing.
Altitude	To 2000 meters (6,560 feet)
INTERNET CONNECTION OPTIONS	
Integrated Wi-Fi	802.11b/g/n
Cellular	CELLMODEM-M1-06 4G based LTE-M1 cellular modem (included only with IQ Combiner 3C-ES). Note that an Enphase Mobile Connect cellular modem is required for all Ensemble installations.
Ethernet	Optional, 802.3, Cat5E (or Cat 6) UTP Ethernet cable (not included)
COMPLIANCE	
Compliance, Combiner	UL 1741, CAN/CSA C22.2 No. 107.1, 47 CFR, Part 15, Class B, ICES 003 Production metering: ANSI C12.20 accuracy class 0.5 (PV production) Consumption metering: accuracy class 2.5
Compliance, IQ Envoy	UL 60601-1/CANCSA 22.2 No. 61010-1

To learn more about Enphase offerings, visit **enphase.com**

ENPHASE

Customer DETAILS

Sharon Octave

6801 COVENTRY ST, NEW ORLEANS, LA 70126, USA

SYSTEM DETAILS

System Size:

12.58 kW

Modules:

34 APTOS DNA-120-MF26-370W

Inverter(s):

34 ENPHASE: IQ8PLUS-72-2-US (240V)

Other:

1 ENPHASE IQ COMBINER 3 W/INTEGRATED ENVOY MONITORING

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STATE OF LOUISIANA
EDWARD R. ZABALA
License No. 37955
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING

7/12/22

ALTERNATIVE SOLAR

ELECTRICAL SPECS

NABCEP CERTIFIED PV Installation Professional

ABDUR RAHMAN
PV-042118-020-489

DRAWN BY
Duna Jenkins 7/12/22

SCALE: NTS

Q-6