SOLAR INDIVIDUAL PERMIT PACKAGE

EDWARD JARAMILLO/ROSA JARAMILLO

6.80 kW GRID TIED PHOTOVOLTAIC SYSTEM

6312756594
31 TYLERSTONE DR
FUQUAY VARINA, NORTH CAROLINA 27526

AHJ: HARNETT COUNTY
UTILITY: DUKE ENERGY CAROLINAS, LLC

CODE INFORMATION

APPLICABLE CODES, LAWS AND REGULATIONS

2018 NORTH CAROLINA BUILDING CODE (NCBC)
2018 INTERNATIONAL EXISTING BUILDING CODE (IEBC)
2018 INTERNATIONAL RESIDENTIAL CODE (IRC)
2018 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)
2018 INTERNATIONAL MECHANICAL CODE (IMC)
2018 INTERNATIONAL FUEL GAS CODE (IFGC)
2017 NATIONAL ELECTRIC CODE (NEC)
2018 NORTH CAROLINA FIRE PREVENTION CODE (NCFPC)

SATELLITE IMAGE

JOB NOTES

SCOPE OF WORK

- (N) 6.800 kW PHOTOVOLTAIC SYSTEM
- (16) 425W (Model SPR-M-425-H-AC) PV MODULES
- POINT OF INTERCONNECTION AT MAIN SERVICE PANEL WITH CIRCUIT BREAKER

SHEET INDEX

PV SOLAR ARCHITECTURAL DRAWINGS

PVA-0	COVER SHEET
PVA-1	ARRAY LAYOUT
PVA-2	LOT DIAGRAM

PV SOLAR STRUCTURAL DRAWINGS

PVS-1	MOUNTING DETAILS

PV SOLAR ELECTRICAL DRAWINGS

PVE-1	ELECTRICAL SINGLE-LINE DIAGRAM & SPECIFICATIONS
PVE-2	ELECTRICAL CALCULATION
PVE-3	ELECTRICAL DATA & SPECIFICATIONS
PVE-4	EQUINOX GROUNDING DETAILS
PVE-5	BRANCH DIAGRAM

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6.80 kWGRID-TIED PHOTOVOLTAIC SYSTEM

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FUQUAY VARINA, NORTH CAROLINA 27526

SOLAR INDIVIDUAL PERMIT PACKAGE
COVER SHEET

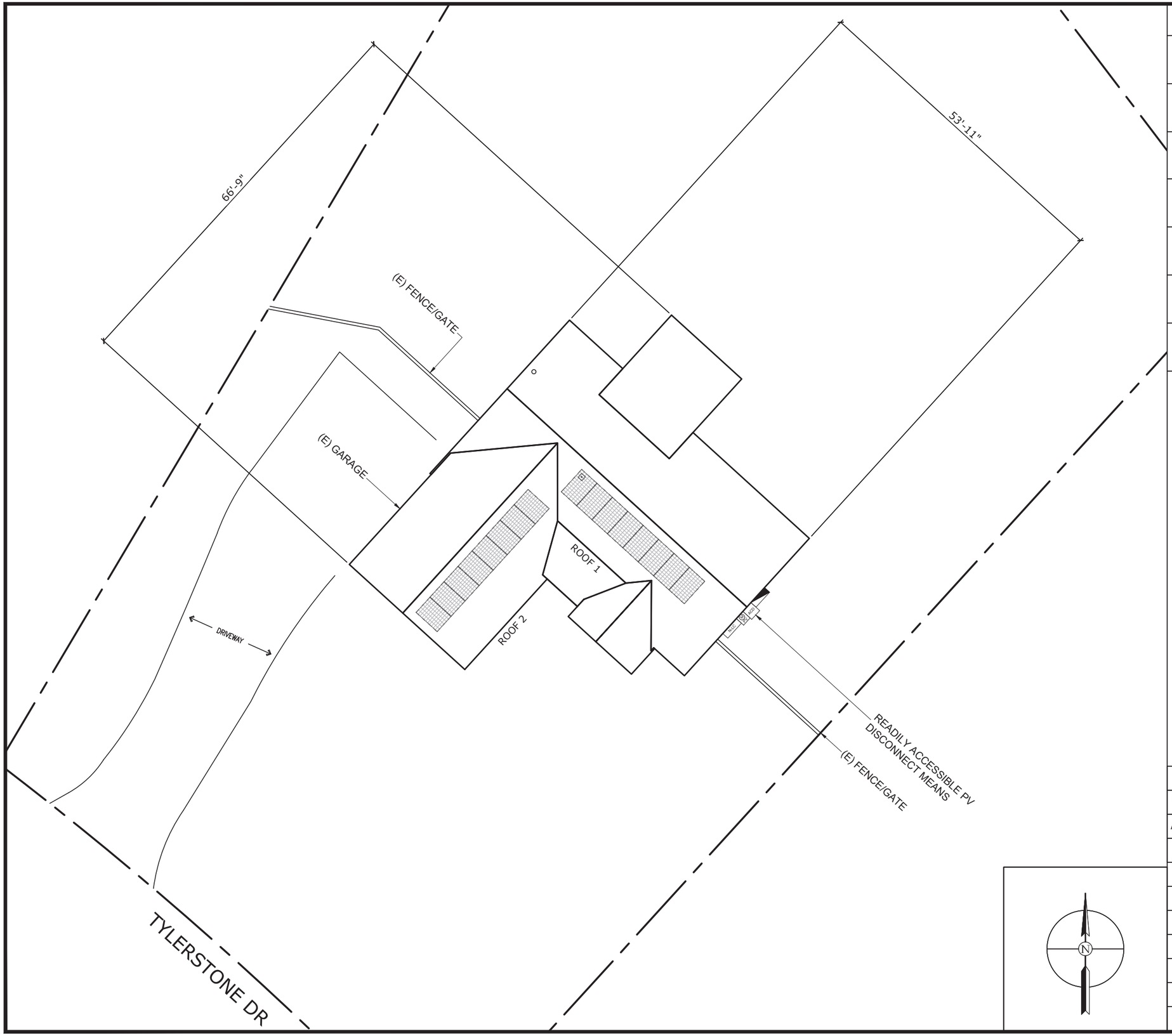
REVISIONS

REV	DESCRIPTION	DATE	DB

DRAWN BY:
MARIELLA BARRERA

INSTALLER	YES SOLAR SOLUTIONS
PROJECT	RP-206480
DATE DRAWN	12-10-2021
SCALE	NTS

PVA-0



LEGEND

	JUNCTION BOX
	CONDUIT
	SERVICE POINT AND UTILITY METERING
	PROPERTY LINE
N-LC	NEW LOAD CENTER
ACD	AC DISCONNECT
PV M	PV METER

NOTE:
1. FIELD ADJUSTMENTS OF FEWER THAN 6" MAY BE ALLOWED BASED ON SITE CONDITIONS AND MEASUREMENTS.

ROOF	1	2				
MODULE QTY.	8	8				
AZIMUTH	222°	132°				
PITCH	8.5:12	10:12				

CONTRACT MODULE & QUANTITY	16 SPR-M425-H-AC (240)
MICROINVERTER TYPE & QUANTITY	16 IQ7HS-66-ACM-US (240)
ROOF TYPE	COMP SHINGLE
ROOF ATTACHMENT QUANTITY	24
STORY HOME TYPE	1 - STORY
TOTAL ARRAY AREA	339 SQ.FT.

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Heinrich Villanueva

Digitally signed by Heinrich Villanueva
Date: 2021.12.13 07:23:30 -08'00'

NORTH CAROLINA PROFESSIONAL SEAL 051509 ENGINEER HEINRICH A. VILLANUEVA II

12/31/21

SEALED FOR ATTACHMENTS AND EXISTING FRAMING ONLY

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ARRAY LAYOUT

REVISIONS

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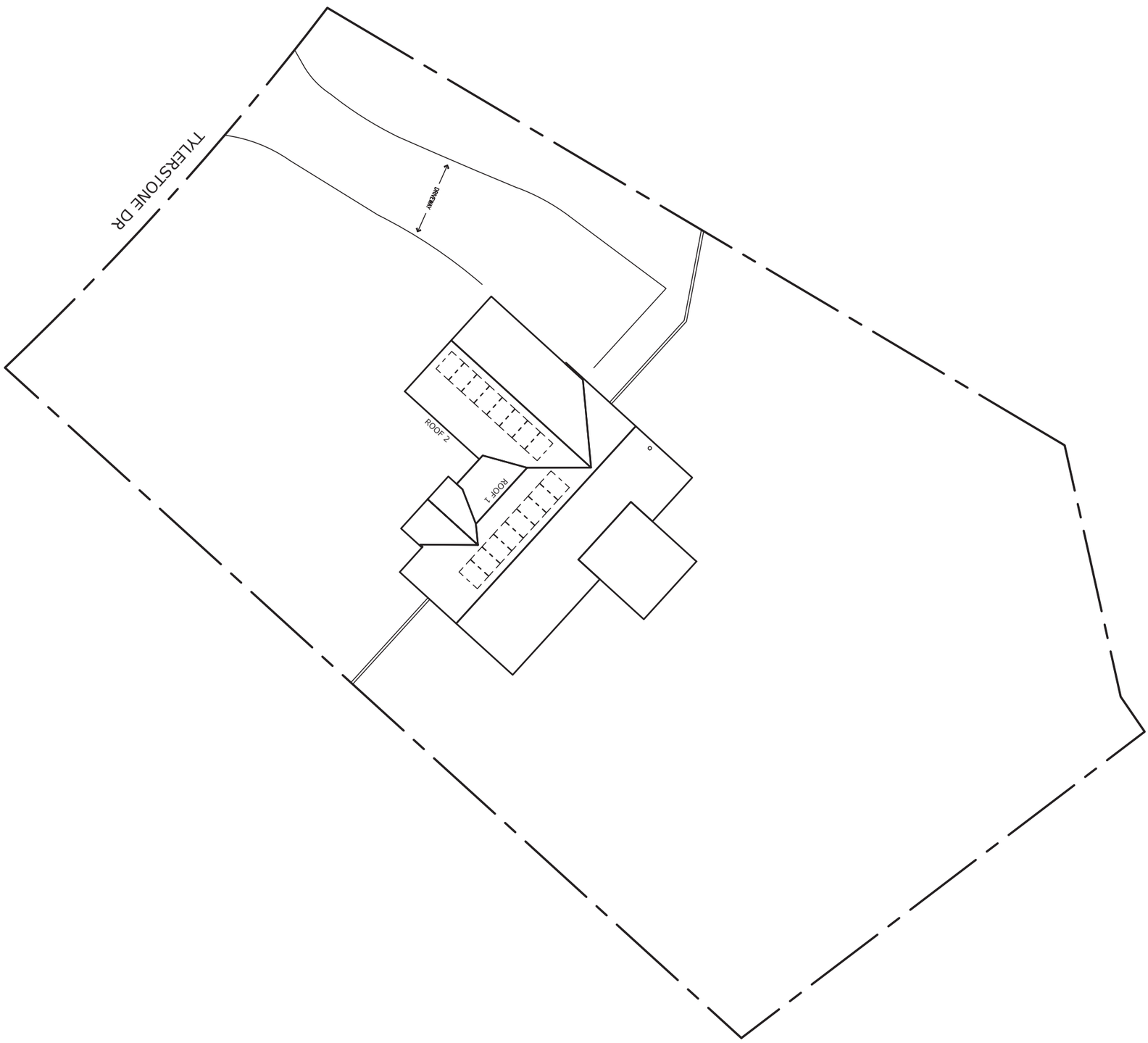
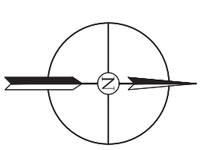
DATE DRAWN	12-10-2021
SCALE	1/16" = 1'-0"

PVA-1





PVA-2

INSTALLER: YES SOLAR SOLUTIONS
PROJECT: RP-206480
DATE DRAWN: 12-10-2021
SCALE: NTS

DRAWN BY: MARIELLA BARRERA

REVISIONS

REV	DESCRIPTION	DATE	DB

EDWARD JARAMILLO/ROSA JARAMILLO
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SOLAR INDIVIDUAL PERMIT PACKAGE
LOT DIAGRAM

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TABLE 1 – ARRAYS INFORMATION

	ROOF PITCH	ROOFING TYPE	ATTACHMENT TYPE	NO. OF STORIES	FRAMING TYPE (in.)	MAX. RAFTER SPAN (ft.)	PENETRATION PATTERN (in.)	MAX. ATTACHMENT SPACING (in.)	MAX. RAIL OVERHANG (in.)
ROOF 1	35°	Comp Shingle	Pegasus L-foot	1	2x4 Truss @ 24" OC	6'	Staggered	72"	24"
ROOF 2	40°	Comp Shingle	Pegasus L-foot	1	2x8 Rafter @ 16" OC	10'	Staggered	64"	22"
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
--	--	--	--	--	--	--	--	--	--
CHECK TABLE 2 FOR PENETRATION PATTERN GUIDE									

FIG 1.1: ROOF 1 STRUCTURAL FRAMING DETAIL

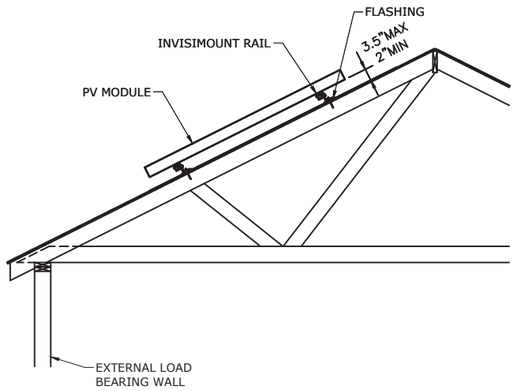


FIG 1.2: ROOF 2 STRUCTURAL FRAMING DETAIL

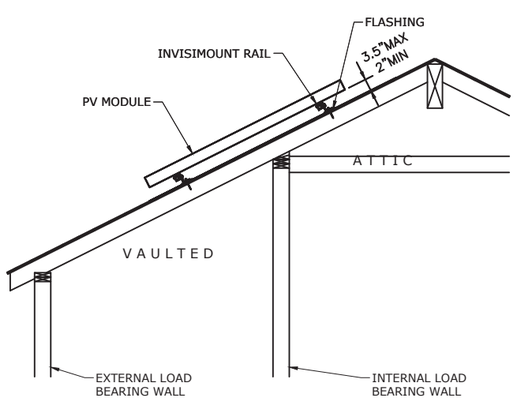


FIGURE 2: INVISIMOUNT ROOF ATTACHMENT DETAILS @ TRUSS / RAFTERS

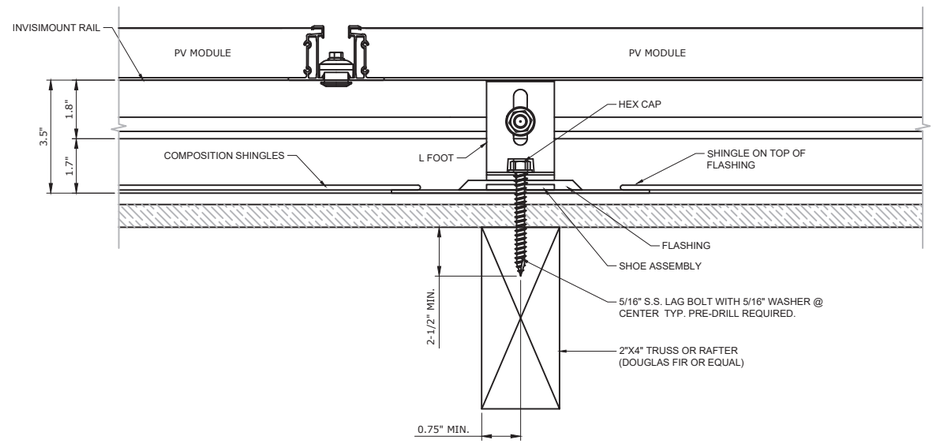
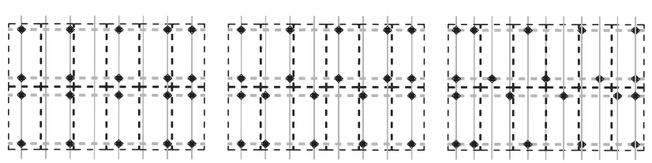
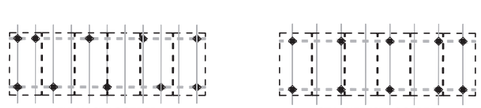


TABLE 2: PENETRATION GUIDE FOR INSTALL

TWO OR MORE ROWS OF MODULES

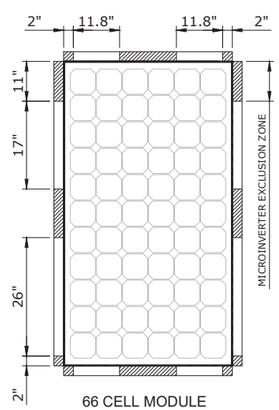


ONE ROW OF MODULES



*CHECK TABLE 1 FOR MAX.. PENETRATION SPACING AND PENETRATION PATTERN FOR EACH ARRAY.

FIGURE 3: MOUNTING CLAMP POSITIONING DETAILS



•RAILS SHALL BE POSITIONED IN THE NON-CROSS HATCHED REGIONS

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SOLAR INDIVIDUAL PERMIT PACKAGE
STRUCTURAL INFORMATION
AND MOUNTING DETAILS

REVISIONS

REV	DESCRIPTION	DATE	DB

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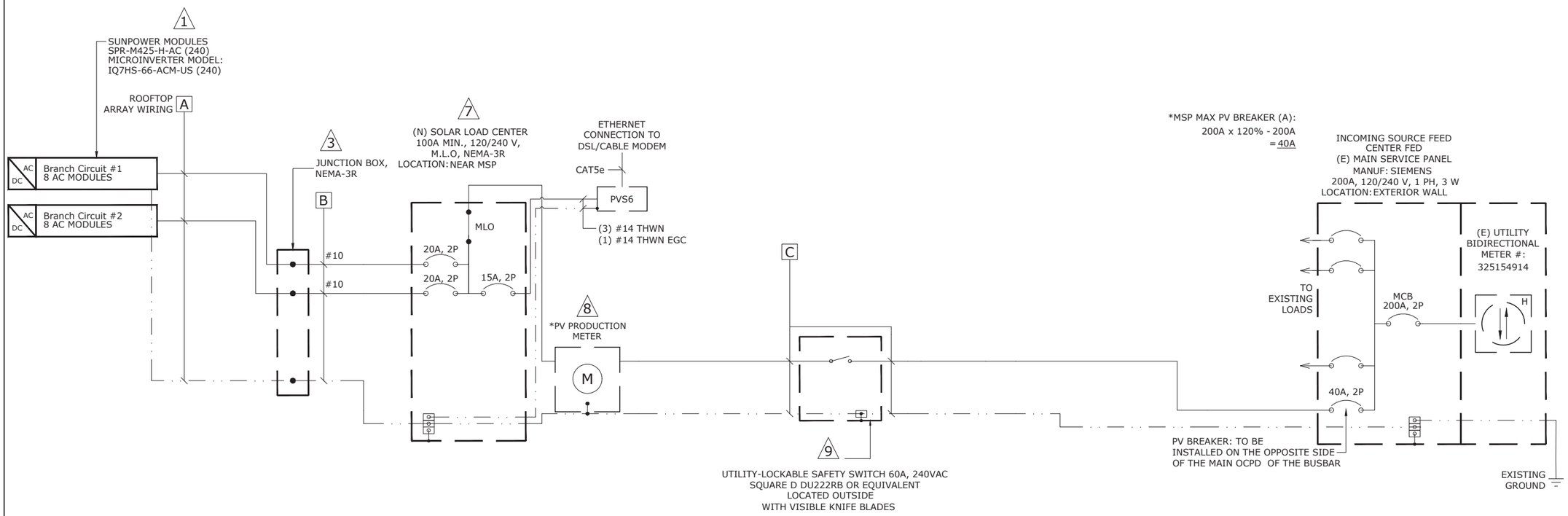
MARIELLA BARRERA

INSTALLER	YES SOLAR SOLUTIONS
PROJECT	RP-206480
DATE DRAWN	12-10-2021
SCALE	NTS

PVS-1

FIGURE A: SINGLE LINE DIAGRAM - 6.80 kW



NOTE:

"PER NEC 705.12(B)(2)(3)(d), A CONNECTION AT EITHER END, BUT NOT BOTH ENDS, OF A CENTER-FED PANELBOARD IN DWELLINGS SHALL BE PERMITTED WHERE THE SUM OF 125 PERCENT OF THE POWER SOURCE(S) OUTPUT CIRCUIT CURRENT AND THE RATING OF THE OVERCURRENT DEVICE PROTECTING THE BUSBAR DOES NOT EXCEED 120 PERCENT OF THE CURRENT RATING OF THE BUSBAR.

TAG	DESCRIPTION	
1	SOLAR AC MODULE / BRANCH	ACM
2	DC / DC CONVERTERS	NO
3	SOURCE CIRCUIT JUNCTION BOX	YES
4	SEPARATE DC DISCONNECT	NO
5	INTERNAL INVERTER DC DISCONNECT	NO
6	STRING INVERTER	NO
7	SOLAR LOAD CENTER	YES
8	PV PRODUCTION METER	YES
9	SEPARATE AC DISCONNECT	YES

PV CERTIFICATIONS AND COMPLIANCE
- UL 1741 / IEEE-1547
- UL 1741 AC MODULE (TYPE 2 FIRE RATED)
- UL 62109-1 / IEC 62109-2
- UL LISTED PV RAPID SHUTDOWN EQUIPMENT

ENABLES INSTALLATION IN ACCORDANCE WITH:
- NEC 690.6 (AC MODULE)
- NEC 690.12 RAPID SHUTDOWN (INSIDE AND OUTSIDE THE ARRAY)
- NEC 690.15 AC CONNECTORS, 690.33(A)~(E)(1)

CONDUCTOR / CONDUIT SCHEDULE

TAG	DESCRIPTION & CONDUCTOR TYPE	CONDUCTOR SIZE (AWG)	NUMBER OF CONDUCTORS	CONDUIT/CABLE TYPE	CONDUIT SIZE
A	SUNPOWER PROVIDED AC MODULES EXTENSION CABLE, LISTED AS AN ASSEMBLY	#12	2	BRANCH CIRCUIT FROM PV ARRAY TO JUNCTION BOX	--
	EGC: BARE Cu	#6	1		
B	THWN-2	#10	4	EMT	3/4"
	EGC: THWN-2	#10	1		
C	THWN-2	#8	3	EMT	3/4"
	EGC: THWN-2	#10	1		

ELECTRICAL NOTES

1. PROPER LISTING EXPECTED FOR CONDITIONS OF USE ON ALL LUGS, FITTINGS, CRIMPS, ETC.
2. ALL CONDUIT BEND RADII TO CONFORM TO THE NEC MINIMUM BEND RADII REQUIREMENTS.
3. MINIMUM CLEARANCE SHALL BE MAINTAINED PER NEC FOR ALL NEW EQUIPMENT TO BE INSTALLED.
4. EXISTING GROUNDING ELECTRODE SYSTEM MUST MEET NEC AND LOCAL UTILITY REQUIREMENTS.
5. COPPER CONDUCTORS SHALL BE USED UNLESS SPECIFIED.
6. TYPE NM (ROMEX) CONDUCTORS ARE ALLOWED FOR INTERNAL AND ATTIC RUNS AND SHALL BE INSTALLED MEETING NEC REQUIREMENTS.
7. IF MAIN SERVICE PANEL IS TO BE UPGRADED, IT WILL BE PERMITTED AND INSTALLED BY 3RD PARTY.
8. AC WIRING SHALL UPSIZE IF VOLTAGE DROP EXCEEDS 2%.
9. RUN CONDUCTORS IN EXISTING CONDUIT WHEN AVAILABLE PROVIDED IT HAS NO OTHER CONDUCTORS RUNNING THROUGH IT.
10. EQUIVALENT SPECIFICATION ON CABLES AND ELECTRICAL EQUIPMENT SPECIFIED ARE ACCEPTABLE.
11. AS DC POWER IS INTERNAL TO THE MODULE, GROUNDING ELECTRODE CONDUCTOR (GEC) FOR THE MODULE OR ARRAY IS NOT REQUIRED.

AC MODULES NOTES

1. DC CIRCUIT IS ISOLATED AND INSULATED FROM GROUND AND MEETS THE REQUIREMENT OF NEC 690.35.
2. SUNPOWER PROVIDED CABLES COMES WITH TWO (2) #12 AWG WIRE AND THIS IS BY DESIGN. NEUTRAL AND ADDITIONAL GROUND WIRE IS NOT REQUIRED FOR PROVIDED TRUNK AND EXTENSION CABLES.
3. SUNPOWER AC MODULES HAVE BEEN TESTED AND CERTIFIED TO UL 2703 FOR INTEGRATED GROUNDING AND HENCE A SEPARATE GROUND WIRE IS NOT REQUIRED WITHIN THE ARRAY.
4. USE ROW-TO-ROW GROUNDING CLIP PROVIDED TO GROUND ROWS OF MODULE. BOND SUB-ARRAYS BY RUNNING #6 AWG BARE CU WIRE AND GROUND LUGS AT A SINGLE POINT ON EACH SUB-ARRAY AND THEN TO THE JUNCTION BOX. REFER TO PVE-4 FOR ADDITIONAL DETAILS.

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SOLAR INDIVIDUAL PERMIT PACKAGE
ELECTRICAL SINGLE-LINE DIAGRAM
& SPECIFICATIONS

REVISIONS

REV	DESCRIPTION	DATE	DB

DRAWN BY:
MARIELLA BARRERA

INSTALLER	YES SOLAR SOLUTIONS
PROJECT	RP-206480
DATE DRAWN	12-10-2021
SCALE	NTS

PVE-1

ELECTRICAL CALCULATIONS

SUBPANEL TO GRID-TIE WIRING	#8
VOLTAGE	240 V
SUM OF BRANCHES: I_{OUT_TOTAL} =	25.6 A
MINIMUM WIRE AMPACITY: I_{MAX} = IOUT x 1.25	32.00 A
CONDUCTOR DE-RATING	
MAXIMUM AMBIENT TEMPERATURE	36 °C
TEMPERATURE USED FOR AMPACITY DE-RATING	36 °C
TEMPERATURE DE-RATING COEFFICIENT	0.91
FILL DE-RATING COEFFICIENT	1.00
$I_{WIREMIN}$ = I_{MAX} / TEMP_COEFF / FILL_COEFF	35.16 A
WIRE SIZE AMPACITY	55 A
CONDUCTOR SIZE	#8
CONDUCTOR SIZE ADJUSTED FOR VOLTAGE DROP	#8
ONE WAY CIRCUIT LENGTH	10 FT.
VOLTAGE DROP	0.17%
OVERCURRENT PROTECTION	**40A, 2P**
MINIMUM OCPD = I_{OUT} x 1.25	32.00 A

	BRANCH 1	BRANCH 2
ROOF JCT BOX TO SUBPANEL WIRING	**#10**	**#10**
NUMBER OF MODULES	8	8
VOLTAGE	240 V	240 V
RATED AC OUTPUT CURRENT: I_{OUT} =	12.8 A	12.8 A
MINIMUM WIRE AMPACITY: I_{MAX} = I_{OUT} x 1.25	16.00 A	16.00 A
CONDUCTOR DE-RATING		
MAXIMUM AMBIENT TEMPERATURE	36 °C	36 °C
TEMPERATURE ADDER	22 °C	22 °C
TEMPERATURE USED FOR AMPACITY DE-RATING	58 °C	58 °C
TEMPERATURE DE-RATING COEFFICIENT	0.71	0.71
FILL DE-RATING COEFFICIENT	0.8	0.8
$I_{WIREMIN}$ = I_{MAX} / TEMP_COEFF / FILL_COEFF	28.17 A	28.17 A
WIRE SIZE AMPACITY	40 A	40 A
CONDUCTOR SIZE	#10	#10
CONDUCTOR SIZE ADJUSTED FOR VOLTAGE DROP	#10	#10
ONE WAY CIRCUIT LENGTH	50 FT.	50 FT.
CALCULATED VOLTAGE DROP	0.66%	0.66%
OVERCURRENT PROTECTION	**20A, 2P**	**20A, 2P**
MINIMUM OCPD = I_{OUT} x 1.25	16.00 A	16.00 A

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SOLAR INDIVIDUAL PERMIT PACKAGE
ELECTRICAL CALCULATION

REVISIONS

REV	DESCRIPTION	DATE	DB

DRAWN BY:
M Barrera
MARIELLA BARRERA

INSTALLER	YES SOLAR SOLUTIONS
PROJECT	RP-206480
DATE DRAWN	12-10-2021
SCALE	NTS

PVE-2

ELECTRICAL DATA & SPECIFICATIONS

PHOTOVOLTAIC POINT OF INTERCONNECTION
WARNING: DUAL POWER SOURCE. SECOND SOURCE IS PHOTOVOLTAIC SYSTEM

MAXIMUM RATED AC OUTPUT CURRENT:	25.6 A	AMPS
MAXIMUM OPERATING AC VOLTAGE:	240 V	VOLTS

SIGNAGE LOCATIONS:

- MAIN SERVICE PANEL
- INDOOR / OUTDOOR SUBPANEL

PHOTOVOLTAIC SYSTEM EQUIPPED WITH RAPID SHUTDOWN

SIGNAGE LOCATIONS:

- MAIN SERVICE PANEL

PV SOLAR BREAKER
DO NOT RELOCATE THIS OVERCURRENT DEVICE

SIGNAGE LOCATIONS:

- MAIN SERVICE PANEL
- NEW INDOOR / OUTDOOR LOAD CENTER
- INDOOR / OUTDOOR SUBPANEL

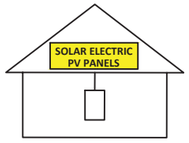
RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM

SIGNAGE LOCATIONS:

- LABEL SHALL BE LOCATED ON OR NO MORE THAN 1M (3FT) FROM THE SWITCH

SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN

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



SIGNAGE LOCATIONS:

- SHALL BE LOCATED ON OR NO MORE THAN 1 M (3 FT) FROM THE SERVICE DISCONNECTING MEANS TO WHICH THE PV SYSTEMS ARE CONNECTED.

PHOTOVOLTAIC SYSTEM AC DISCONNECT

RATED AC OUTPUT CURRENT:	25.6 A	AMPS
NOMINAL OPERATING AC VOLTAGE:	240 V	VOLTS

SIGNAGE LOCATIONS:

- INDOOR / OUTDOOR AC DISCONNECT

SIGNAGE NOTES

1. MATERIAL USED FOR THE SIGNAGE SHALL BE REFLECTIVE, WEATHER RESISTANT AND SUITABLE FOR THE ENVIRONMENT.
2. ALL SIGNAGE SHALL HAVE ALL CAPITAL LETTERS WITH MINIMUM ⅜" LETTER HEIGHT, WHITE ON RED BACKGROUND.
3. MAIN SERVICE DISCONNECT MARKING SHALL BE PLACED ADJACENT TO MAIN SERVICE DISCONNECT IN A LOCATION CLEARLY VISIBLE FROM THE LOCATION WHERE THE LEVER IS OPERATED.
4. MARKING IS REQUIRED ON ALL INTERIOR AND EXTERIOR DC CONDUIT, RACEWAYS, ENCLOSURES, CABLE ASSEMBLIES, AND JUNCTION BOXES TO ALERT THE FIRE SERVICE TO AVOID CUTTING THEM. MARKINGS SHALL BE PLACED EVERY 10', AT TURNS AND ABOVE AND/OR BELOW PENETRATIONS, AND AT ALL DC COMBINER AND JUNCTION BOXES.
5. DO NOT USE SCREWS FOR SIGNAGE ATTACHMENT. USE ONLY APPROVED ADHESIVE.

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SOLAR INDIVIDUAL PERMIT PACKAGE
ELECTRICAL DATA & SPECIFICATIONS

REVISIONS

REV	DESCRIPTION	DATE	DB

DRAWN BY:
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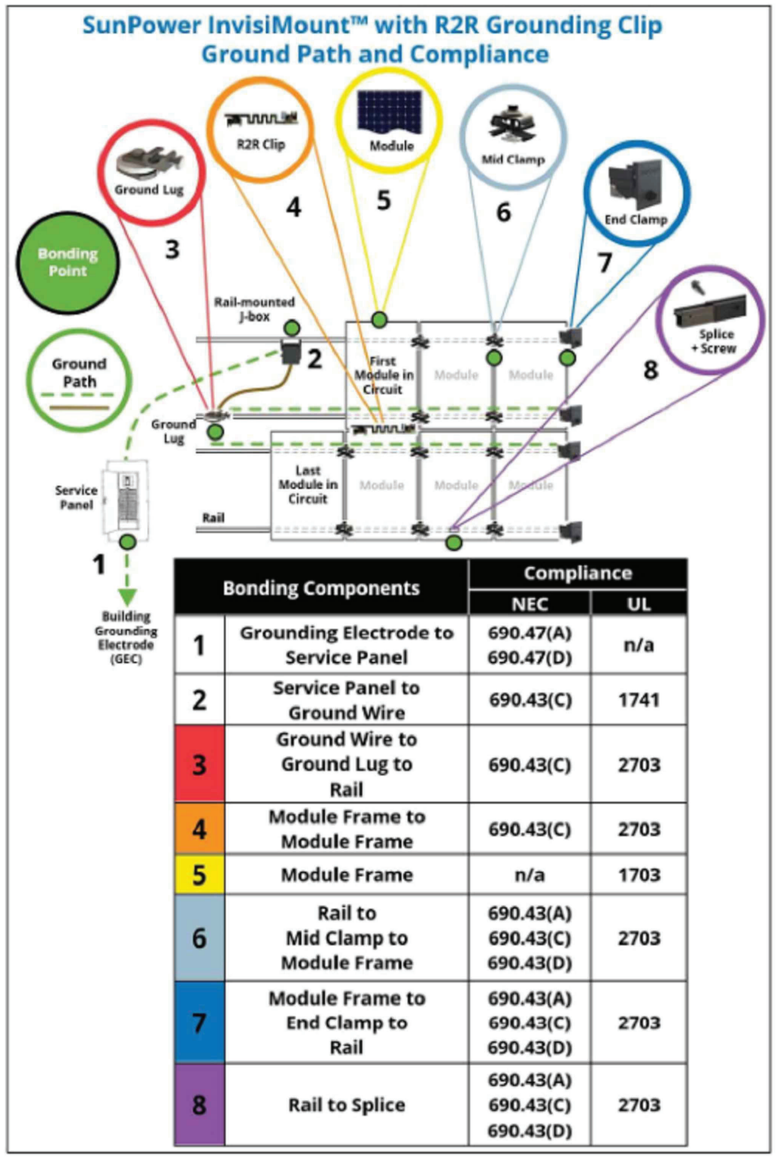
INSTALLER	YES SOLAR SOLUTIONS
PROJECT	RP-206480
DATE DRAWN	12-10-2021
SCALE	NTS

PVE-3

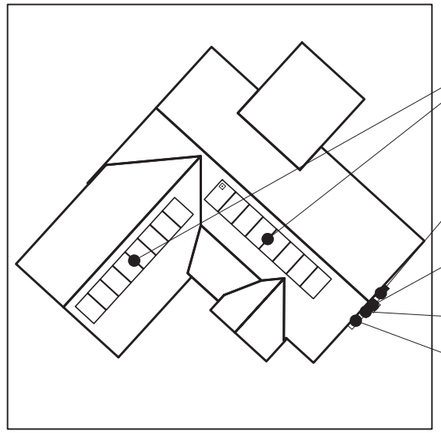


	Bonding Components	Compliance NEC	Compliance UL
1	Grounding Electrode to Service Panel	690.47(A) 690.47(D)	n/a
2	Service Panel to Ground Wire	690.43(C)	1741
3	Ground Wire to Ground Lug to Rail	690.43(C)	2703
4	Module Frame to Module Frame	690.43(C)	2703
5	Module Frame	n/a	1703
6	Rail to Mid Clamp to Module Frame	690.43(A) 690.43(C) 690.43(D)	2703
7	Module Frame to End Clamp to Rail	690.43(A) 690.43(C) 690.43(D)	2703
8	Rail to Splice	690.43(A) 690.43(C) 690.43(D)	2703

FIGURE 1: SUNPOWER EQUINOX GROUNDING DETAILS

CAUTION:

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM THE FOLLOWING SOURCES WITH DISCONNECT(S) LOCATED AS SHOWN:



PHOTOVOLTAIC ARRAY ON ROOF

SERVICE POINT & UTILITY METERING

AC DISCONNECT

PV METER

SOLAR LOAD CENTER

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FIGURE 2: PLACARD IDENTIFYING LOCATION OF DISCONNECTS AND POWER SOURCES

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REVISIONS

REV	DESCRIPTION	DATE	DB

DRAWN BY: MBarrera
MARIELLA BARRERA

INSTALLER	YES SOLAR SOLUTIONS
PROJECT	RP-206480
DATE DRAWN	12-10-2021
SCALE	NTS

PVE-4

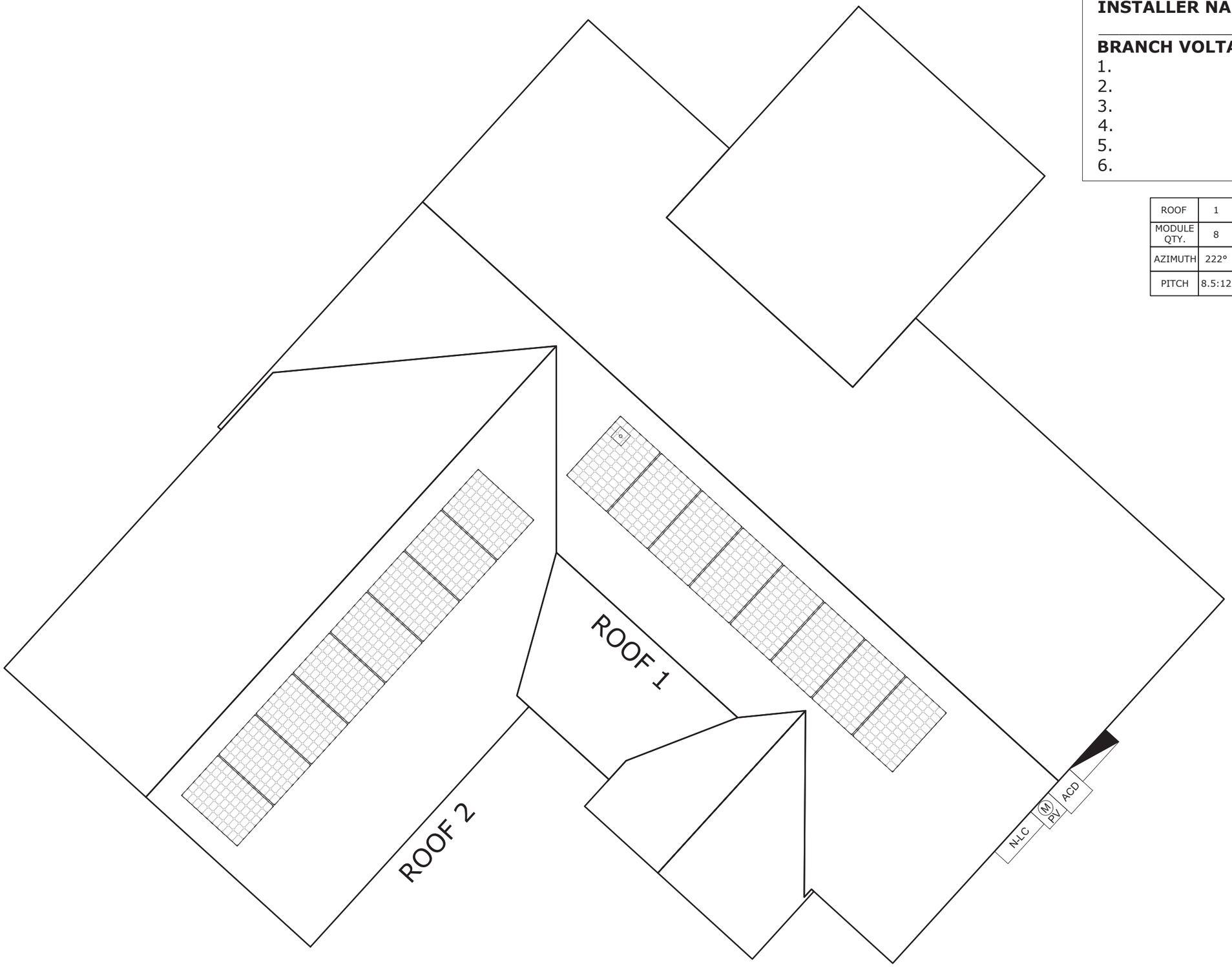
INSTALLER NAME:

_____

BRANCH VOLTAGES:

1.
2.
3.
4.
5.
6.

ROOF	1	2				
MODULE QTY.	8	8				
AZIMUTH	222°	132°				
PITCH	8.5:12	10:12				



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SOLAR INDIVIDUAL PERMIT PACKAGE
BRANCH DIAGRAM

REVISIONS

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MBarrera
MARIELLA BARRERA

INSTALLER	YES SOLAR SOLUTIONS
PROJECT	RP-206480
DATE DRAWN	12-10-2021
SCALE	21/128" = 1'-0"

PVE-5

SUNPOWER®

Preliminary Datasheet

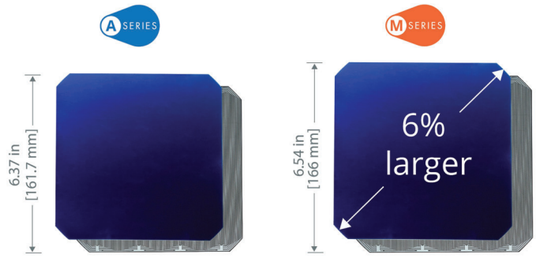
440–420 W Residential AC Module

SunPower® Maxeon® Technology

Built specifically for use with the SunPower Equinox™ system, the only fully integrated solution designed, engineered, and warranted by one manufacturer.

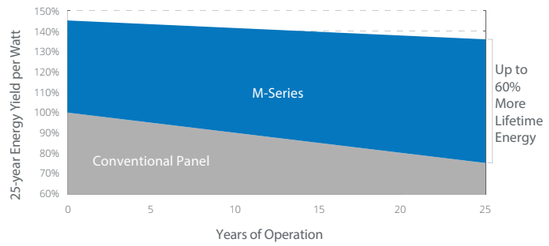
Highest Power Density Available.

The Maxeon Gen 6 cell is 6% larger than prior generations, delivering the most powerful cell and highest-efficiency module in residential solar. The result is more power per square meter than any commercially available solar.



Highest Lifetime Energy and Savings.

Designed to deliver 60% more energy over 25 years in real-world conditions like partial shade and high temperatures.[1]



Best Reliability. Best Warranty.

With more than 42.6 million and 15 GW modules deployed around the world, SunPower technology is proven to last. That's why we stand behind our module and microinverter with the industry's best 25-year Combined Power and Product Warranty, including the highest Power Warranty in solar.

BETTER PRODUCT · BETTER WARRANTY
25-yr SunPower Complete Confidence

Factory-integrated Microinverter (MI)

- Highest-power integrated AC module
- 25-Year limited product warranty covered by Enphase
- Engineered and calibrated by Enphase for SunPower AC modules

AC Electrical Data		
Inverter Model: Type H (Enphase IQ7HS)	**@240 VAC**	**@208 VAC**
Max. Continuous Output Power (VA)	384	369
Nom. (L–L) Voltage/Range[2] (V)	240 / 211–264	208 / 183–229
Max. Continuous Output Current (Arms)	1.60	1.77
Max. Units per 20 A (L–L) Branch Circuit[3]	10	9
CEC Weighted Efficiency	97.0%	96.5%
Nom. Frequency	60 Hz	
Extended Frequency Range	47–68 Hz	
AC Short Circuit Fault Current Over 3 Cycles	4.82 A rms	
Overvoltage Class AC Port	III	
AC Port Backfeed Current	18 mA	
Power Factor Setting	1.0	
Power Factor (adjustable)	0.85 (inductive) – 0.85 (capacitive)	

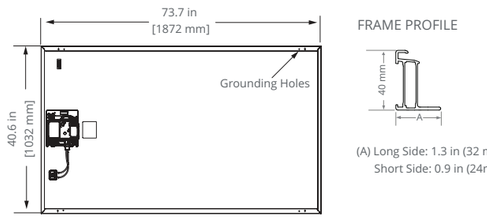
DC Power Data					
	SPR-M440-H-AC	SPR-M435-H-AC	SPR-M430-H-AC	SPR-M425-H-AC	SPR-M420-H-AC
Nom. Power[5] (Pnom) W	440	435	430	425	420
Power Tolerance	+5/–0%				
Module Efficiency	22.8%	22.5%	22.3%	22.0%	21.7%
Temp. Coef. (Power)	–0.29%/°C				
Shade Tolerance	Integrated module-level max. power point tracking				

Tested Operating Conditions	
Operating Temp.	–40°F to +185°F (–40°C to +85°C)
Max. Ambient Temp.	122°F (50°C)
Max. Test Load[7]	Wind: 125 psf, 6000 Pa, 611 kg/m² back Snow: 187 psf, 9000 Pa, 917 kg/m² front
Max. Design Load	Wind: 75 psf, 3600 Pa, 367 kg/m² back Snow: 125 psf, 6000 Pa, 611 kg/m² front
Impact Resistance	1 inch (25 mm) diameter hail at 52 mph (23 m/s)

Mechanical Data	
Solar Cells	66 Maxeon 6 cells
Front Glass	High-transmission tempered glass with anti-reflective coating
Environmental Rating	Outdoor rated
Frame	Class 1 black anodized (highest AAMA rating)
Weight	48 lbs (21.8 kg)
Recommended Max. Module Spacing	1.3 in. (33 mm)

Warranties, Certifications, and Compliance (Pending)	
Warranties	• 25-year limited power warranty • 25-year limited product warranty
Certifications and Compliance	• UL 1741 / IEEE-1547 • UL 1741 AC Module (Type 2 fire rated) • UL 62109-1 / IEC 62109-2 • FCC Part 15 Class B • ICES-0003 Class B • CAN/CSA-C22.2 NO. 107.1-01 • CA Rule 21 (UL 1741 SA)[4] (includes Volt/Var and Reactive Power Priority) • UL Listed PV Rapid Shutdown Equipment[6] Enables installation in accordance with: • NEC 690.6 (AC module) • NEC 690.12 Rapid Shutdown (inside and outside the array) • NEC 690.15 AC Connectors, 690.33(A)–(E)(1) When used with AC module Q Cables and accessories (UL 6703 and UL 2238)[6] : Rated for load break disconnect
PID Test	1000 V: IEC 62804

Packaging Configuration	
Modules per pallet	25
Packaging box dimensions	1915 x 1072 x 12 0 mm
Pallet gross weight	590 kg
Pallets per container	32
Net weight per container	18880 kg



Please read the safety and installation guide.

1 Maxeon 435 W, 22.5% efficient, compared to a Conventional Panel on same-sized arrays (260 W, 16% efficient, approx. 1.6 m²), 7.9% more energy per watt (based on PVSyst pan files for avg. US climate), 0.5%/yr slower degradation rate (Jordan, et. al. "Robust PV Degradation Methodology and Application." PVSC 2018).
2 Based on search of datasheet values from websites of top 10 manufacturers per IHS, as of June 2021.
3 Jordan, et. al. Robust PV Degradation Methodology and Application. PVSC 2018.
4 Factory set to 1547a-2014 default settings. CA Rule 21 default settings profile set during commissioning.
5 Standard Test Conditions (1000 W/m² irradiance, AM 1.5, 25°C). All DC voltage is fully contained within the module.
6 This product is UL Listed as PVRSE and conforms with NEC 2014 and NEC 2017 690.12; and C22.1-2015 Rule 64-218 Rapid Shutdown of PV Systems, for AC and DC conductors; when installed according to manufacturer's instructions.
7 Please read the safety and installation instructions for more information regarding load ratings and mounting configurations.

See www.sunpower.com/company for more reference information.
For more details, see extended datasheet: www.sunpower.com/solar-resources.
Specifications included in this datasheet are subject to change without notice.

1-800-SUNPOWER

AC MODULE
GRID SUPPORT UTILITY INTERACTIVE
PV RAPID SHUTDOWN EQUIPMENT
LISTED E478330
Module Fire Performance: Type

539973 Rev A / LTR_EN
Publication Date: August 2021

PEGASUS SOLAR™

A BETTER DAY ON THE JOB

COMP MOUNTS




WATERTIGHT FOR LIFE

Pegasus Solar's Comp Mounts are a cost effective, high-quality option for rail installations on composition shingle roofs. Designed to last decades, the one-piece flashing with elevated cone means there is simply nothing to fail.

25-year Warranty
Manufactured with advanced materials and coatings to outlast the roof itself

Superior Waterproofing
Tested to AC286 without sealant
0.9" elevated water seal

Code Compliant
Fully IBC/CBC Code Compliant
Exceeds ASCE 7-16 Standards

All-In-One Kit Packaging
Flashings, L-Feet and SS lags with bonded EPDM washers are included in each 24-pack

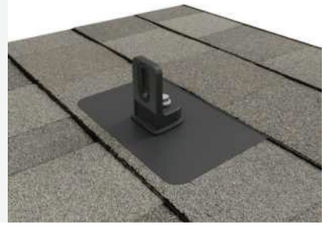
COMP MOUNTS

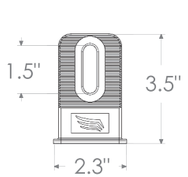
1. Drill pilot hole in center of rafter.

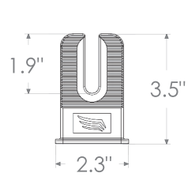
2. Optional: Apply a "U-shape" of sealant to underside of flashing and postition under 2nd shingle course, cone over pilot hole.

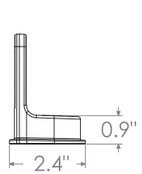
3. Place L-Foot over cone and install lag with washer through L-Foot.

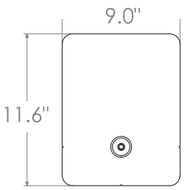
4. Drive lag to required depth. Attach rail per rail manufacturer's instructions.

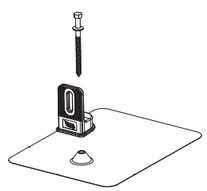












Specifications	Comp Mount Install Kits				
SKU	PSCR-CBB0	PSCR-UBB0	SPCR-CBBH	PSCR-CMM0	PSCR-UMM0
Finish	Black L-Foot and Black Flashing			Mill L-Foot and Mill Flashing	
L-Foot Type	Closed Slot	Open Slot	Closed Slot	Closed Slot	Open Slot
Kit Contents	L-Foot, Flashing, 5/16"x 4-1/2" SS Lag with metalized EPDM washer	L-Foot, Flashing, 5/16"x 4-1/2" SS Lag with metalized EPDM washer	L-Foot, Flashing, 5/16"x 4-1/2" SS Lag with metalized EPDM washer and M10 Hex Bolt	L-Foot, Flashing, 5/16"x 4-1/2" SS Lag with metalized EPDM washer	L-Foot, Flashing, 5/16"x 4-1/2" SS Lag with metalized EPDM washer
Roof Type	Composition Shingle				
Certifications	IBC, ASCE/SEI 7-16, AC286				
Install Application	Railed Systems				
Compatible Rail	Most				
Flashing Material	Painted Galvalume Plus			Galvalume Plus	
L-Foot Material	Aluminum				
Kit Quantity	24				
	72				

Pegasus Solar Inc • 100 West Ohio Avenue, Richmond, CA 94804 • T: 510.210.3797 • **www.pegasussolar.com**

SunPower® InvisiMount™ | Residential Mounting System

Simple and Fast Installation

- Integrated module-to-rail grounding
- Pre-assembled mid and end clamps
- Levitating mid clamp for easy placement
- Mid clamp width facilitates consistent, even module spacing
- UL 2703 Listed integrated grounding

Flexible Design

- Addresses nearly all sloped residential roofs
- Design in landscape and portrait with up to 8′ rail span
- Pre-drilled rails and rail splice
- Rails enable easy obstacle management

Customer-Preferred Aesthetics

- #1 module and #1 mounting aesthetics
- Best-in-class system aesthetics
- Premium, low-profile design
- Black anodized components
- Hidden mid clamps and capped, flush end clamps

Part of Superior System

- Built for use with SunPower DC and AC modules
- Best-in-class system reliability and aesthetics
- New optional rooftop transition flashing, rail-mounted J-box, and wire management rail clips
- Combine with SunPower modules and SunPower EnergyLink® monitoring app

Elegant Simplicity

SunPower® InvisiMount™ is a SunPower-designed rail-based mounting system. The InvisiMount system addresses residential sloped roofs and combines faster installation time, design flexibility, and superior aesthetics. The InvisiMount product was specifically envisioned and engineered to pair with SunPower modules. The resulting system-level approach amplifies the aesthetic and installation benefits—for homeowners and for installers.

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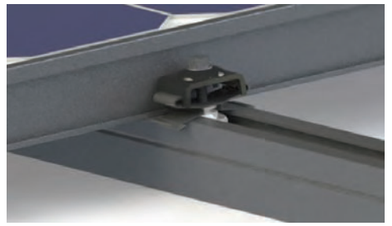
SunPower® InvisiMount™ | Residential Mounting System

InvisiMount Components

Module[1] / Mid Clamp and Rail



Module[1] / End Clamp and Rail

Mid Clamp

End Clamp

Rail & Rail Splice

Ground Lug Assembly (*for DC systems only*)

InvisiMount Component Details		
Mid clamp	Black oxide stainless steel 300 series	63 g (2.2 oz)
End clamp	Black anodized aluminum 6000 series	110 g (3.88 oz)
Rail	Black anodized aluminum 6000 series	830 g/m (9 oz/ft)
Rail splice	Aluminum alloy 6000 series	830 g/m (9 oz/ft)
Rail bolt	M10-1.5 × 25 mm; DIN 933 SS304	nominal
Rail nut	M10-1.5; DIN 6923 SS304	nominal
Ground lug assembly	SS304; A2-70 bolt; tin-plated copper lug	106.5 g/m (3.75 oz)

InvisiMount Component LRFD Capacities[2]		
Mid clamp	Uplift	664 lbf
	Shear	540 lbf
End clamp	Uplift	899 lbf
	Shear	220 lbf
Rail	Moment: upward	548 lbf-ft
	Moment: downward	580 lbf-ft
Rail splice	Moment: upward	548 lbf-ft
	Moment: downward	580 lbf-ft
L-foot	Uplift	1000 lbf
	Shear	390 lbf

InvisiMount Operating Conditions	
Temperature	−40° C to 90° C (−40° F to 194° F)
Max. Load (LRFD)	• 3000 Pa uplift • 6000 Pa downforce

Roof Attachment Hardware Supported by Design Tool	
Application	• Composition Shingle Rafter Attachment • Composition Shingle Roof Decking Attachment • Curved and Flat Tile Roof Attachment • Universal interface for other roof attachments

InvisiMount Warranties And Certifications	
Warranties	• 25-year product warranty • 5-year finish warranty
Certifications	• UL 2703 Listed • Class A Fire Rated

Roof Attachment Hardware Warranties
Refer to roof attachment hardware manufacturer's documentation.

[1] Mod[illegible]dware interoperability.

[2] SunPower recommends that all Equinox™, InvisiMount™, and AC module systems always be designed using the SunPower Design Tool. If a designer decides to instead use the component capacities listed in this document to design a system, note that the capacities shown are Load and Resistance Factor Design (LRFD) design loads, and are NOT to be used for Allowable Stress Design (ASD) calculations; and that a licensed Professional Engineer (PE) must then stamp all calculations. Should you have any questions please contact SunPower Technical Support at 1-800-SUNPOWER (1-800-786-7693).

sunpower.com
509506 RevF

Datasheet

SUNPOWER®

SunPower® Monitoring | Residential SunPower PV Supervisor

Improve Support, Reduce Costs

An intuitive monitoring website enables you to:

- See a visual map of customer sites
- Remotely manage hundreds of sites
- Remotely diagnose and troubleshoot system issues
- Drill down for the status of individual devices

Add Value for Customers

With mySunPower™ monitoring customers can:

- Track their energy production by day, month, year and in different weather conditions
- See their energy use and estimated bill savings
- Maximize their savings with automatic system alerts and tips
- Customize storage settings and easily monitor and track available battery power
- Receive elective system reports

SunPower® Monitoring—Plug-and-Play Installation

This complete solution for residential monitoring and control includes the SunPower® PV Supervisor (PVS) which improves the installation process, overall system reliability, and customer experience:

- Compact footprint for improved aesthetics
- Robust cloud connectivity and comprehensive local connectivity
- Flexible configuration of devices during installation
- Consumption metering
- Revenue-quality production metering
- Web-based commissioning
- Remote diagnostics of PVS and inverters
- Durable UL Type 3R enclosure helps reduce maintenance costs
- Easy integration with SunPower eBOS

Robust Cloud Connectivity

Multiple options to maintain optimal connectivity:

- Hardwired Ethernet
- WiFi
- Cellular backup

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SUNPOWER®

Site Requirements	
Number of modules supported per PVS	• 85 (SunPower AC modules)
Internet access	• High-speed internet access via accessible router or switch
Power	• 100–240 VAC (L–N), 50 or 60 Hz • 208 VAC (L–L in phase 3), 60 Hz

Mechanical	
Weight	• 5.5 lb (2.5 kg)
Dimensions	• 11.8 × 8.0 × 4.2 in. (30.5 × 20.5 × 10.8 cm)
Enclosure rating	• UL 50E Type 3R

Operating Conditions	
Temperature	• –22°F to +140°F (–30°C to +60°C)
Humidity (max.)	• 95%, non-condensing

Warranty and Certifications	
Warranty	• 10-year Limited Warranty
Certifications	• UL, cUL, CE, UL 61010-1 and -2, FCC Part 15 (Class B)

Communication	
RS-485	• Supports string inverters, external meters, and other auxiliary devices
Integrated metering	• One channel of revenue-quality production metering • Two channels of consumption metering
Ethernet	• 1 LAN (or optional WAN) port
PLC	• Supports SunPower AC modules
WiFi	• 802.11b/g/n 2.4 GHz and 5 GHz
Cellular	• LTE Cat-M1/3G UMTS
ZigBee	• IEEE 802.15.4 MAC, 2.4 GHz ISM band
Data storage	• 60 days
Upgrades	• Automatic firmware upgrades

Web and Mobile Device Support	
Customer site	• mysunpower.com
Partner site	• monitor.sunpower.com
Browsers	• Firefox, Safari, and Chrome
Mobile devices	• iPhone®, iPad®, and Android™
Customer app	1 Create account online at mysunpower.com 2 On a mobile device, download the SunPower Monitoring app from Apple App Store or Google Play™ Store 3 Sign in using account email and password

SUNPOWER®

530536 Rev D

Product data sheet
Characteristics

DU222RB
Safety switch, general duty, non fusible, 60A, 2 poles, 10 hp, 240 VAC, NEMA 3R, bolt-on provision

Product availability : Stock - Normally stocked in distribution facility

Price* : 353.00 USD

Main

Product	Single Throw Safety Switch
Current Rating	60 A
Certifications	UL listed file E2875
Enclosure Rating	NEMA 3R
Disconnect Type	Non-fusible disconnect switch
Factory Installed Neutral	None
Mounting Type	Surface
Number of Poles	2
Electrical Connection	Lugs
Duty Rating	General duty
Voltage Rating	240 V AC
Wire Size	AWG 12...AWG 3 aluminium AWG 14...AWG 3 copper

Complementary

Short-circuit withstand	200 kA
Maximum Horse Power Rating	10 hp 240 V AC 60 Hz 1 phase NEC 430.52
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)
Height	9.63 in (244.60 mm)
Width	7.75 in (196.85 mm)
Maximum Depth	3.75 in (95.25 mm)

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

Product Data Sheet
D222NRB
Safety Switch , 60A, Fusible, Cartridge (Class H, K or R), 2-Pole

SQUARE D by Schneider Electric

List Price $326.00 USD

Availability **Stock Item: This item is normally stocked in our distribution facility.**

Technical Characteristics

Terminal Type	Lugs
Type of Duty	General Duty
Maximum Voltage Rating	240VAC
Wire Size	#10 to #2 AWG(Al) - #14 to #2 AWG(Cu)
Depth	4.83 Inches
Height	14.88 Inches
Width	6.63 Inches
Action	Single Throw
Ampere Rating	60A
Approvals	UL Listed File: E2875
Enclosure Rating	NEMA 3R
Enclosure Type	Rainproof and Sleet/Ice proof (Indoor/Outdoor)
Enclosure Material	Galvannealed Steel
Factory Installed Neutral	Yes
Fuse Type	Cartridge (Class H, K or R)
Disconnect Type	Fusible
Short Circuit Current Rating	100kA (max. depending on fuse type)
Mounting Type	Surface
Number of Poles	2-Pole

Shipping and Ordering

Category	00106 - Safety Switch, General Duty, 30 - 200 Amp, NEMA3R
Discount Schedule	DE1A
GTIN	00785901460640
Package Quantity	1
Weight	8.35 lbs.
Availability Code	Stock Item: This item is normally stocked in our distribution facility.
Returnability	Y
Country of Origin	US

As standards, specifications, and designs change from time to time, please ask for confirmation of the information given in this document.

Schneider Electric