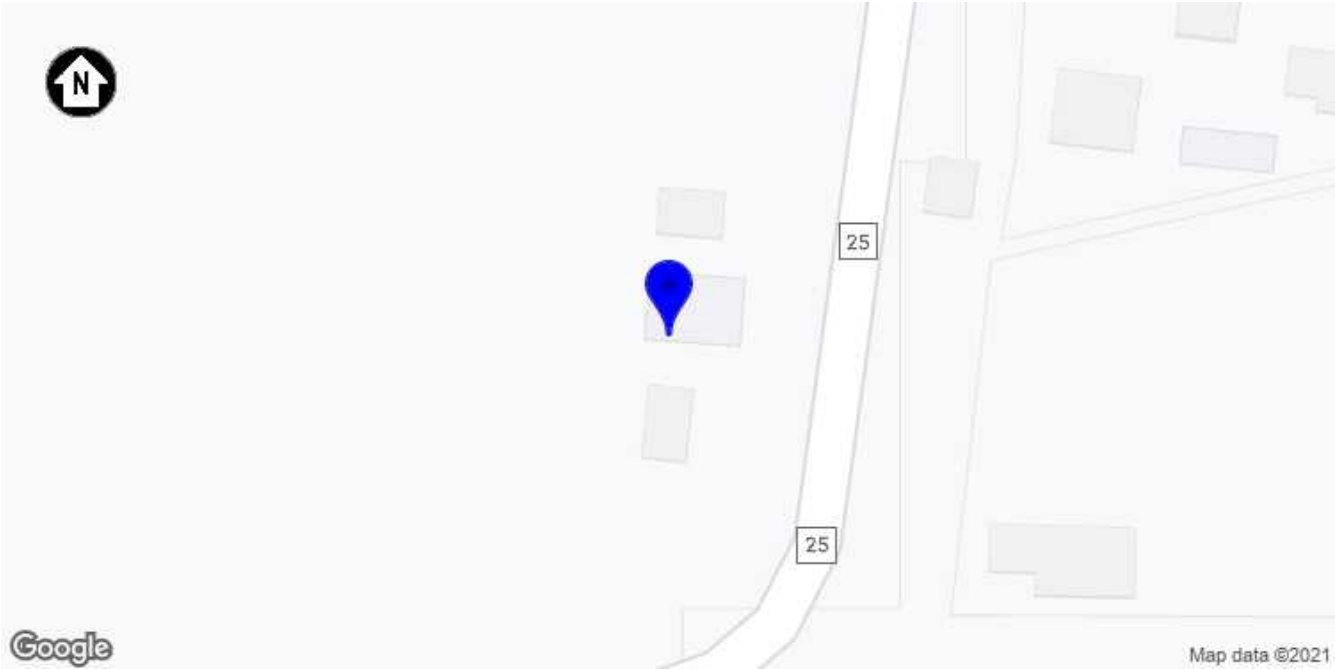


DIRECTORY OF PAGES	
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PV-2	SITE PLAN
PV-3	SINGLE-LINE DIAGRAM
PV-4	SAFETY LABELS
PV-5	ATTACHMENT PLAN
PV-6	ATTACHMENT DETAILS
PV-7	FIRE SAFETY PLAN
APPENDIX	MODULE DATASHEET
	OPTIMIZER DATASHEET
	DISCONNECT DATASHEET
	INVERTER DATASHEET
	MOUNTING SYSTEM DATASHEET
	MOUNTING SYSTEM ENGINEERING LETTER
	MOUNTING SYSTEM ENGINEERING LETTER
	UL 1703 CLASS A FIRE CERTIFICATION
	UL 2703 GROUND AND BONDING CERTIFICATION
	ANCHOR DATASHEET

PROJECT DETAILS	
PROPERTY OWNER	PAULA JACONETTA
PROPERTY ADDRESS	24045 CO RD 25, OAK CREEK, CO 80467 US
ZONING	RESIDENTIAL
USE AND OCCUPANCY CLASSIFICATION	ONE- OR TWO-FAMILY DWELLING GROUP (GROUP R3)
AHJ	COUNTY OF ROUTT
UTILITY COMPANY	YAMPA VALLEY ELECTRIC ASSN INC
ELECTRICAL CODE	2020 NEC (NFPA 70)
FIRE CODE	2015 IFC
OTHER BUILDING CODES	IBC 2018

CONTRACTOR INFORMATION	
COMPANY	ACTIVE ENERGIES SOLAR, LLC
ADDRESS	40928 HWY 6 #C, AVON, CO 81620
PHONE NUMBER	(970) 306-4233
CONTRACTOR SIGNATURE	



1 PLOT
PV-1 SCALE: NTS



2 LOCALE
PV-1 SCALE: NTS

SCOPE OF WORK
THIS PROJECT INVOLVES THE INSTALLATION OF A GRID-INTERACTIVE PV SYSTEM. PV MODULES WILL BE MOUNTED USING A PREENGINEERED MOUNTING SYSTEM. THE MODULES WILL BE ELECTRICALLY CONNECTED WITH DC TO AC POWER INVERTERS AND INTERCONNECTED TO THE LOCAL UTILITY USING MEANS AND METHODS CONSISTENT WITH THE RULES ENFORCED BY THE LOCAL UTILITY AND PERMITTING JURISDICTION.

THIS DOCUMENT HAS BEEN PREPARED FOR THE PURPOSE OF DESCRIBING THE DESIGN OF A PROPOSED PV SYSTEM WITH ENOUGH DETAIL TO DEMONSTRATE COMPLIANCE WITH APPLICABLE CODES AND REGULATIONS. THE DOCUMENT SHALL NOT BE RELIED UPON AS A SUBSTITUTE FOR FOLLOWING MANUFACTURER INSTALLATION INSTRUCTIONS. THE SYSTEM SHALL COMPLY WITH ALL MANUFACTURERS LISTING AND INSTALLATION INSTRUCTIONS, AS WELL AS ALL APPLICABLE CODES. NOTHING IN THIS DOCUMENT SHALL BE INTERPRETED IN A WAY THAT OVERRIDES THEM. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ALL CONDITIONS, DIMENSIONS, AND DETAILS IN THIS DOCUMENT.

SYSTEM DETAILS	
DESCRIPTION	NEW GRID-INTERACTIVE PV SYSTEM WITH NO ENERGY STORAGE
DC RATING OF SYSTEM	5.36KW
AC RATING OF SYSTEM	5.00KW
AC OUTPUT CURRENT	21.0A
INVERTER(S)	1 X SOLAR EDGE SE5000H-US000BXX4
MODULE	LG LG335N1K-V5
ARRAY WIRING	(2) STRINGS OF 8

INTERCONNECTION DETAILS	
POINT OF CONNECTION	NEW LOAD-SIDE AC CONNECTION PER NEC 705.12(B)(3)(2) AT MSP
UTILITY SERVICE	120/240V 1Ø
LOCATION	MAIN SERVICE PANEL W/200A BUSBAR 200A MCB

SITE DETAILS	
RECORD LOW	-40°C (-40°F)
AVERAGE HIGH	16°C (60°F)
RISK CATEGORY	II
WIND EXPOSURE CATEGORY	C

P-170653

ACTIVE ENERGIES SOLAR, LLC

Reviewed for Code Compliance 03/24/2022

GRID-TIED SOLAR POWER SYSTEM

JACONETTA RESIDENCE
24045 CO RD 25
OAK CREEK, CO 80467

COLORADO LICENSED
ARASH ZANDIEH
53832
PROFESSIONAL ENGINEER

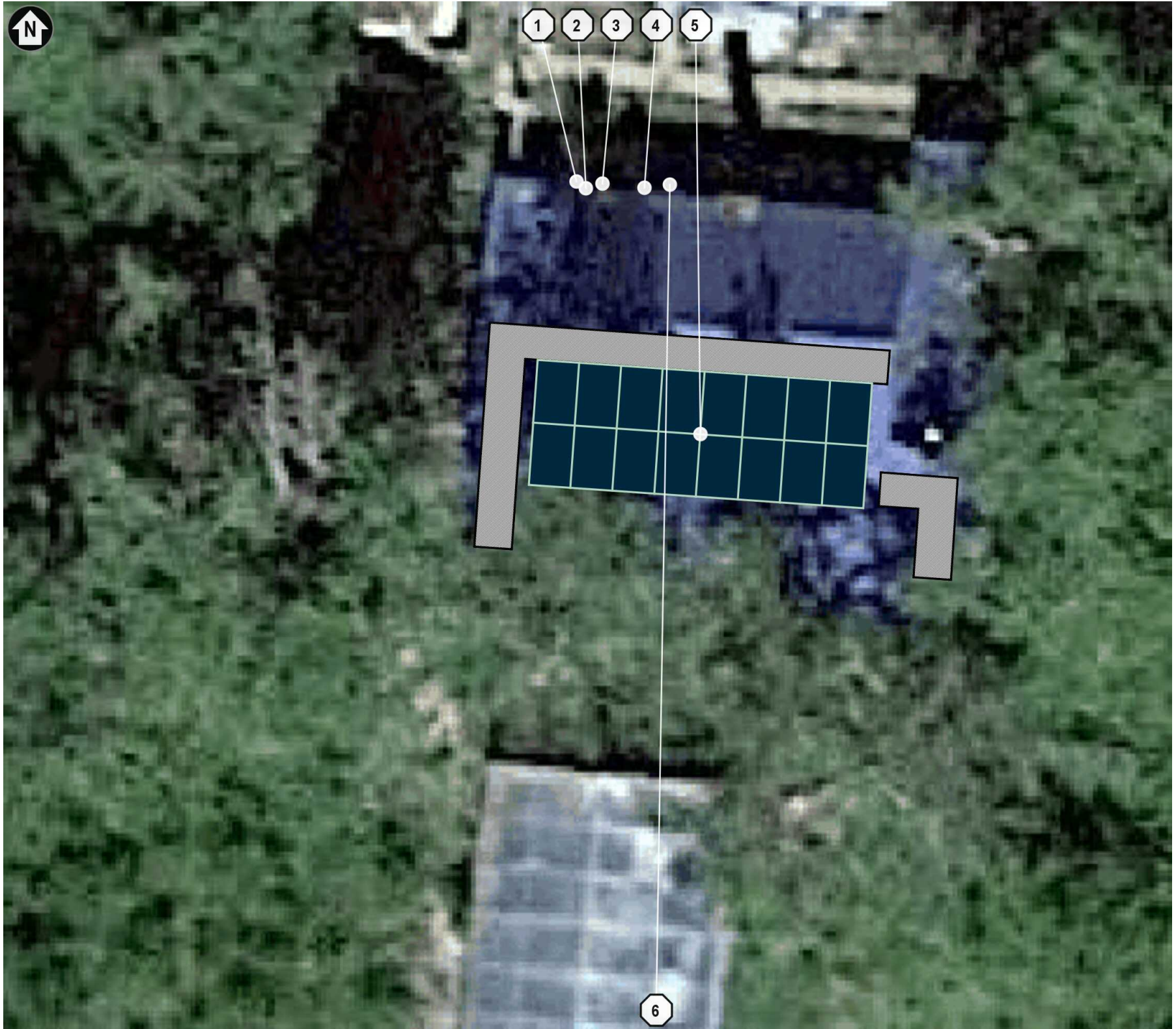
Exp. 10/31/2023

PROJECT SUMMARY

DOC ID: 170653-210328-1
DATE: 2/25/22
CREATOR:
REVIEWER:

REVISIONS

PV-1



1 SITE PLAN
PV-2 SCALE: 1" = 10'

GENERAL NOTES	
1	EQUIPMENT LIKELY TO BE WORKED UPON WHILE ENERGIZED SHALL BE INSTALLED IN LOCATIONS THAT SATISFY MINIMUM WORKING CLEARANCES PER NEC 110.26.
2	CONTRACTOR SHALL USE ONLY COMPONENTS LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY FOR THE INTENDED USE.
3	CONTRACTOR IS RESPONSIBLE FOR FURNISHING ALL EQUIPMENT, CABLES, ADDITIONAL CONDUITS, RACEWAYS, AND OTHER ACCESSORIES NECESSARY FOR A COMPLETE AND OPERATIONAL PV SYSTEM.
4	WHERE DC PV SOURCE OR DC PV OUTPUT CIRCUITS ARE RUN INSIDE THE BUILDING, THEY SHALL BE CONTAINED IN METAL RACEWAYS, TYPE MC METAL-CLAD CABLE, OR METAL ENCLOSURES FROM THE POINT OF PENETRATION INTO THE BUILDING TO THE FIRST READILY ACCESSIBLE DISCONNECTING MEANS, PER NEC 690.31(D).
5	ALL EMT CONDUIT FITTINGS SHALL BE LISTED AS WEATHERPROOF FITTINGS AND INSTALLED TO ENSURE A RAIN-TIGHT FIT, PER NEC 358.42.

- 1 (N) PRODUCTION METER, OUTDOOR
- 2 (N) INVERTER, OUTDOOR
- 3 (N) VISIBLE, LOCKABLE, READILY-ACCESSIBLE AC DISCONNECT LOCATED WITHIN 10 FT OF UTILITY METER, OUTDOOR
- 4 (E) MAIN SERVICE PANEL (MSP), OUTDOOR
- 5 (N) PROPOSED ROOF-MOUNTED PHOTOVOLTAIC ARRAY. 6:12 (27°) SLOPED ROOF, 16 PV MODULES (BLACK FRAME, BLACK BACKSHEET), 184° AZIMUTH
- 6 (E) UTILITY METER, OUTDOOR

P-170653

ACTIVE ENERGIES

SOLAR, LLC

GRID-TIED SOLAR POWER SYSTEM

JACONITA RESIDENCE
24045 CO RD 25
OAK CREEK, CO 80467

Reviewed for Code Compliance

03/24/2022

SITE PLAN

DOC ID: 170653-210328-1

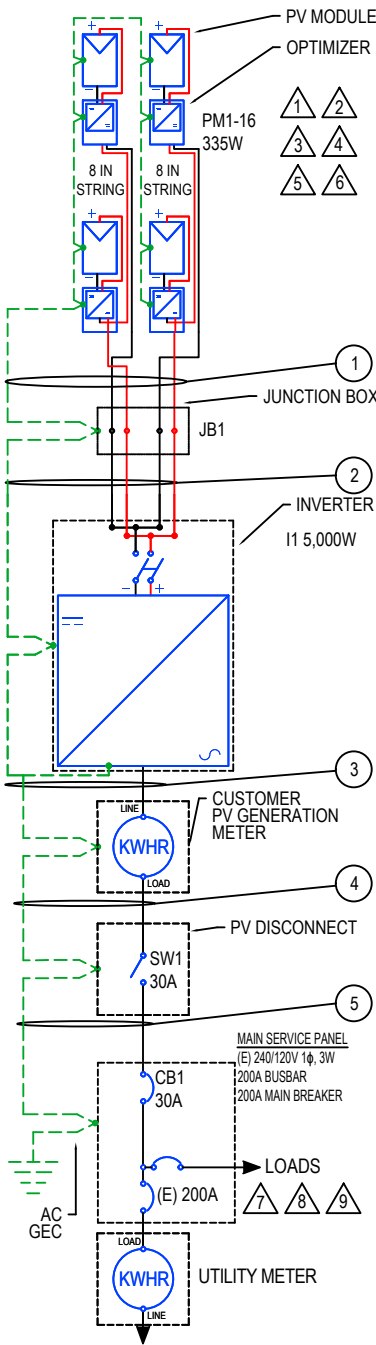
DATE: 2/25/22

CREATOR:

REVIEWER:

REVISIONS

PV-2



MODULES										
REF.	QTY.	MAKE AND MODEL	PMAX	PTC	ISC	IMP	VOC	VMP	TEMP. COEFF. OF VOC	FUSE RATING
PM1-16	16	LG LG335N1K-V5	335W	308W	10.31A	9.72A	41.1V	34.5V	-0.111V/°C (-0.27%/°C)	20A

INVERTERS							
REF.	QTY.	MAKE AND MODEL	AC VOLTAGE	GROUND	RATED POWER	MAX OUTPUT CURRENT	MAX INPUT CURRENT
I1	1	SOLAR EDGE SE5000H-US (240V)	240V	NOT SOLIDLY GROUND	5,000W	21.0A	13.5A

OPTIMIZERS					
REF.	QTY.	MODEL	RATED INPUT POWER	MAX OUTPUT CURRENT	MAX INPUT ISC
PO1-16	16	SOLAR EDGE P340	340W	15A	11.0A

DISCONNECTS			
REF.	QTY.	MAKE AND MODEL	RATED CURRENT
SW1	1	SQUARE D DU221RB OR EQUIV.	30A

OCPDS			
REF.	QTY.	RATED CURRENT	MAX VOLTAGE
CB1	1	30A	240VAC

SYSTEM SUMMARY		
	STRING 1	STRING 2
DC SOURCE CIRCUIT CURRENT	15A	15A
NUMBER OF OPTIMIZERS	8	8
NOMINAL STRING VOLTAGE	380V	380V
ARRAY OPERATING CURRENT	7.1A	7.1A
ARRAY STC POWER	5,360W	
ARRAY PTC POWER	4,933W	
MAX AC CURRENT	21A	
MAX AC POWER OUTPUT	5,000W	
DERATED AC POWER OUTPUT	4,825W	

- NOTES
- 1

SOLAR EDGE SYSTEM MEETS REQUIREMENTS FOR PHOTOVOLTAIC RAPID SHUTDOWN SYSTEM (PVRSS), AS PER NEC 690.12(B)(2).
- 2

MATING CONNECTORS SHALL COMPLY WITH NEC 690.33.
- 3

THE SPECIFIED OPTIMIZER CAN BE SUBSTITUTED WITH A P505, P401, P485, S440, OR S500. THESE OPTIMIZERS HAVE AN INPUT VOLTAGE WINDOW WIDE ENOUGH TO ACCOMMODATE THE OUTPUT VOLTAGE RANGE OF THE MODULE AT THE DESIGN TEMPERATURES, HAVE A MAX INPUT CURRENT RATING THAT IS ABOVE THE MAX OUTPUT CURRENT OF THE MODULE, AND A MAX POWER INPUT THAT IS ABOVE THE RATED POWER OUTPUT OF THE MODULE.
- 4

DC PV CONDUCTORS ARE NOT SOLIDLY-GROUNDED. NO DC PV CONDUCTOR SHALL BE WHITE- OR GRAY-COLORED
- 5

ALL METAL ENCLOSURES, RACEWAYS, CABLES AND EXPOSED NONCURRENT-CARRYING METAL PARTS OF EQUIPMENT SHALL BE GROUNDED TO EARTH AS REQUIRED BY NEC 250.4(A) AND PART III OF ARTICLE 250 AND EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED ACCORDING TO NEC 690.45. THE GROUNDING ELECTRODE SYSTEM SHALL ADHERE TO NEC 690.47(A) AND NEC 250.169. THE DC GROUNDING ELECTRODE SHALL BE SIZED ACCORDING TO NEC 250.166 AND INSTALLED IN COMPLIANCE WITH NEC 250.64.
- 6

MAX DC VOLTAGE OF ARRAY FIXED BY THE INVERTER AT 380V REGARDLESS OF TEMPERATURE. THE MAX DC VOLTAGE OF THE MODULE AT -40°C IS 48.3V (-40°C - 25°C) X -0.111V/°C + 41.1V = 48.3V).
- 7

POINT-OF-CONNECTION IS ON LOAD SIDE OF SERVICE DISCONNECT, IN COMPLIANCE WITH NEC 705.12(B)(3)(2). OUTPUT IS BACKFED THROUGH BREAKER IN MAIN PANEL.
- 8

THE BREAKER SHALL BE LOCATED AT THE OPPOSITE END OF THE BUSBAR FROM THE MAIN BREAKER. THE BREAKER SHALL NOT BE MARKED FOR "LINE" AND "LOAD".
- 9

PV SYSTEM DISCONNECT SHALL BE A VISIBLE KNIFE-BLADE TYPE DISCONNECT THAT IS ACCESSIBLE AND LOCKABLE BY THE UTILITY IN ACCORDANCE WITH NEC 690.13(E). THE DISCONNECT SHALL BE LOCATED WITHIN 10 FT OF UTILITY METER AND INSTALLED IN COMPLIANCE WITH NEC 705.20 AND GROUPED AS REQUIRED BY NEC 230.72.

CONDUCTOR AND CONDUIT SCHEDULE W/ELECTRICAL CALCULATIONS														
ID	TYPICAL	CONDUCTOR	CONDUIT / CABLE	CURRENT-CARRYING CONDUCTORS IN CONDUIT / CABLE	OCPD	EGC	TEMP. CORR. FACTOR	FILL FACTOR	CONT. CURRENT	MAX. CURRENT (125%)	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	AMP. @ TERM. TEMP. RATING
1	2	10 AWG PV WIRE, COPPER	FREE AIR	N/A	N/A	6 AWG BARE, COPPER	0.91 (38°C)	1.0	15A	18.75A	55A	50.05A	75°C	50A
2	1	10 AWG THWN-2, COPPER	0.75" DIA. LFNC	4	N/A	12 AWG THWN-2, COPPER	1.08 (16°C)	0.8	15A	18.75A	55A	47.52A	90°C	55A
3	1	10 AWG THWN-2, COPPER	0.5" DIA. LFNC	2	30A	10 AWG THWN-2, COPPER	1.08 (16°C)	1.0	21A	26.25A	40A	43.2A	75°C	35A
4	1	10 AWG THWN-2, COPPER	0.5" DIA. EMT	2	30A	10 AWG THWN-2, COPPER	1.08 (16°C)	1.0	21A	26.25A	40A	43.2A	75°C	35A
5	1	10 AWG THWN-2, COPPER	0.5" DIA. EMT	2	30A	10 AWG THWN-2, COPPER	1.08 (16°C)	1.0	21A	26.25A	40A	43.2A	75°C	35A

GENERAL ELECTRICAL NOTES

- 1
- UTILITY HAS 24-HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC SYSTEM COMPONENTS LOCATED AT THE SERVICE ENTRANCE.
- 2
- CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER NEC ARTICLE 300.6 (C) (1) AND ARTICLE 310.10 (D).
- 3
- CONDUCTORS EXPOSED TO WET LOCATIONS SHALL BE SUITABLE FOR USE IN WET LOCATIONS PER NEC ARTICLE 310.10 (C).

GROUNDING NOTES

- 1
- ALL EQUIPMENT SHALL BE PROPERLY GROUNDED PER THE REQUIREMENTS OF NEC ARTICLES 250 & 690
- 2
- PV MODULES SHALL BE GROUNDED TO MOUNTING RAILS USING MODULE LUGS OR RACKING INTEGRATED GROUNDING CLAMPS AS ALLOWED BY LOCAL JURISDICTION. ALL OTHER EXPOSED METAL PARTS SHALL BE GROUNDED USING UL-LISTED LAY-IN LUGS.
- 3
- INSTALLER SHALL CONFIRM THAT MOUNTING SYSTEM HAS BEEN EVALUATED FOR COMPLIANCE WITH UL 2703 "GROUNDING AND BONDING" WHEN USED WITH PROPOSED PV MODULE.
- 4
- IF THE EXISTING MAIN SERVICE PANEL DOES NOT HAVE A VERIFIABLE GROUNDING ELECTRODE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO INSTALL A SUPPLEMENTAL GROUNDING ELECTRODE.
- 5
- AC SYSTEM GROUNDING ELECTRODE CONDUCTOR (GEC) SHALL BE A MINIMUM SIZE #8AWG WHEN INSULATED, #6AWG IF BARE WIRE.
- 6
- EQUIPMENT GROUNDING CONDUCTORS SHALL BE SIZED ACCORDING TO NEC ARTICLE 690.45, AND BE A MINIMUM OF #10AWG WHEN NOT EXPOSED TO DAMAGE, AND #6AWG SHALL BE USED WHEN EXPOSED TO DAMAGE
- 7
- GROUNDING AND BONDING CONDUCTORS, IF INSULATED, SHALL BE COLOR CODED GREEN, OR MARKED GREEN IF #4AWG OR LARGER

1

SINGLE-LINE DIAGRAM

PV-3

SCALE: NTS

P-170653



GRID-TIED SOLAR POWER SYSTEM

JACONTO RESIDENCE

2445 CO RD 25

OAK CREEK, MO 64067

Reviewed for Code Compliance
08/24/2022

SINGLE-LINE DIAGRAM

PROJECT ID: 170653

DATE: 02/25/22

CREATED BY: SDT

CHECKED BY:

REVISIONS

PV-3

DC RACEWAYS

2

JB1 - TRANSITION BOX
(MODEL NOT SPECIFIED)

3

SW1 - DISCONNECT
(SQUARE D DU221RB)

356

I1 - INVERTER
(SOLAR EDGE SE5000H-US000BXX4)

34

MSP - MAIN SERVICE PANEL

15678

1

SEE NOTE NO. 5 (MSP)

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.

SOLAR ELECTRIC
PV PANELS

NEC690.56(C)(1)

6

AC SOLAR DISCONNECT (SW1, CB1 IN MSP)

PV SYSTEM DISCONNECT

NEC690.13(B)

2

SEE NOTE NO. 6 (DC RACEWAYS)

WARNING
PHOTOVOLTAIC POWER SOURCE

NEC690.31(D)(2)

4

DC DISCONNECT (I1)

DIRECT-CURRENT PV POWER SOURCE
MAXIMUM VOLTAGE: 380V
MAX CIRCUIT-CURRENT: 37.5A
DC-TO-DC CONVERTER RATED CURRENT: 15.0A

NEC690.53

7

ANY AC ELECTRICAL PANEL THAT IS FED BY
BOTH THE UTILITY AND THE PHOTOVOLTAIC
SYSTEM (MSP)

! CAUTION !
MULTIPLE SOURCES OF POWER

NEC705.10

3

EACH DISCONNECTING MEANS FOR
PHOTOVOLTAIC EQUIPMENT (JB1, SW1, I1)

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

NEC690.13(B)

5

AC DISCONNECT (SW1, CB1 IN MSP)

MAXIMUM AC OPERATING CURRENT: 21.0A
MAXIMUM AC OPERATING VOLTAGE: 240V

NEC690.54

8

SOLAR BREAKER (MSP)

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

NEC705.12(B)(3)(2)

LABELING NOTES	
1	ALL PLAQUES AND SIGNAGE REQUIRED BY 2020 NEC AND 2015 IFC WILL BE INSTALLED AS REQUIRED.
2	LABELS, WARNING(S) AND MARKING SHALL COMPLY WITH ANSI Z535.4, WHICH REQUIRES THAT DANGER, WARNING, AND CAUTION SIGNS USED THE STANDARD HEADER COLORS, HEADER TEXT, AND SAFETY ALERT SYMBOL ON EACH LABEL. THE ANSI STANDARD REQUIRES A HEADING THAT IS AT LEAST 50% TALLER THAN THE BODY TEXT, IN ACCORDANCE WITH NEC 110.21(B).
3	A PERMANENT PLAQUE OR DIRECTORY SHALL BE INSTALLED PROVIDING THE LOCATION OF THE SERVICE DISCONNECTING MEANS AND THE PHOTOVOLTAIC SYSTEM DISCONNECTING MEANS IF NOT IN THE SAME LOCATION IN ACCORDANCE WITH NEC 690.56(B).
4	THE DIAGRAM INDICATING THE LOCATIONS OF DISCONNECTS SHALL BE CORRECTLY ORIENTED WITH RESPECT TO THE DIAGRAM'S LOCATION, IN ACCORDANCE WITH NEC 705.10
5	LABEL(S) WITH MARKING, "TURN RAPID SHUTDOWN SWITCH TO THE 'OFF' POSITION TO SHUT DOWN PV SYSTEM AND REDUCE SHOCK HAZARD IN THE ARRAY," SHALL BE LOCATED WITHIN 3 FT OF SERVICE DISCONNECTING MEANS. THE TITLE SHALL UTILIZE CAPITALIZED LETTERS WITH A MINIMUM HEIGHT OF 3/8" IN BLACK ON A YELLOW BACKGROUND, AND REMAINING TEXT SHALL BE CAPITALIZED WITH A MINIMUM HEIGHT OF 3/16" IN BLACK ON WHITE BACKGROUND
6	LABEL(S) WITH MARKING, "WARNING PHOTOVOLTAIC POWER SOURCE," SHALL BE LOCATED AT EVERY 10 FEET OF EACH DC RACEWAY AND WITHIN ONE FOOT OF EVERY TURN OR BEND AND WITHIN ONE FOOT ABOVE AND BELOW ALL PENETRATIONS OF ROOF/CEILING ASSEMBLIES, WALLS AND BARRIERS. THE LABEL SHALL HAVE 3/8" TALL LETTERS AND BE REFLECTIVE WITH WHITE TEXT ON A RED BACKGROUND

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GRID-TIED SOLAR POWER SYSTEM

JACONETTA RESIDENCE
24045 CO RD 25
OAK CREEK, CO 80467

SAFETY LABELS

DOC ID: 170653-210328-1
DATE: 2/25/22
CREATOR:
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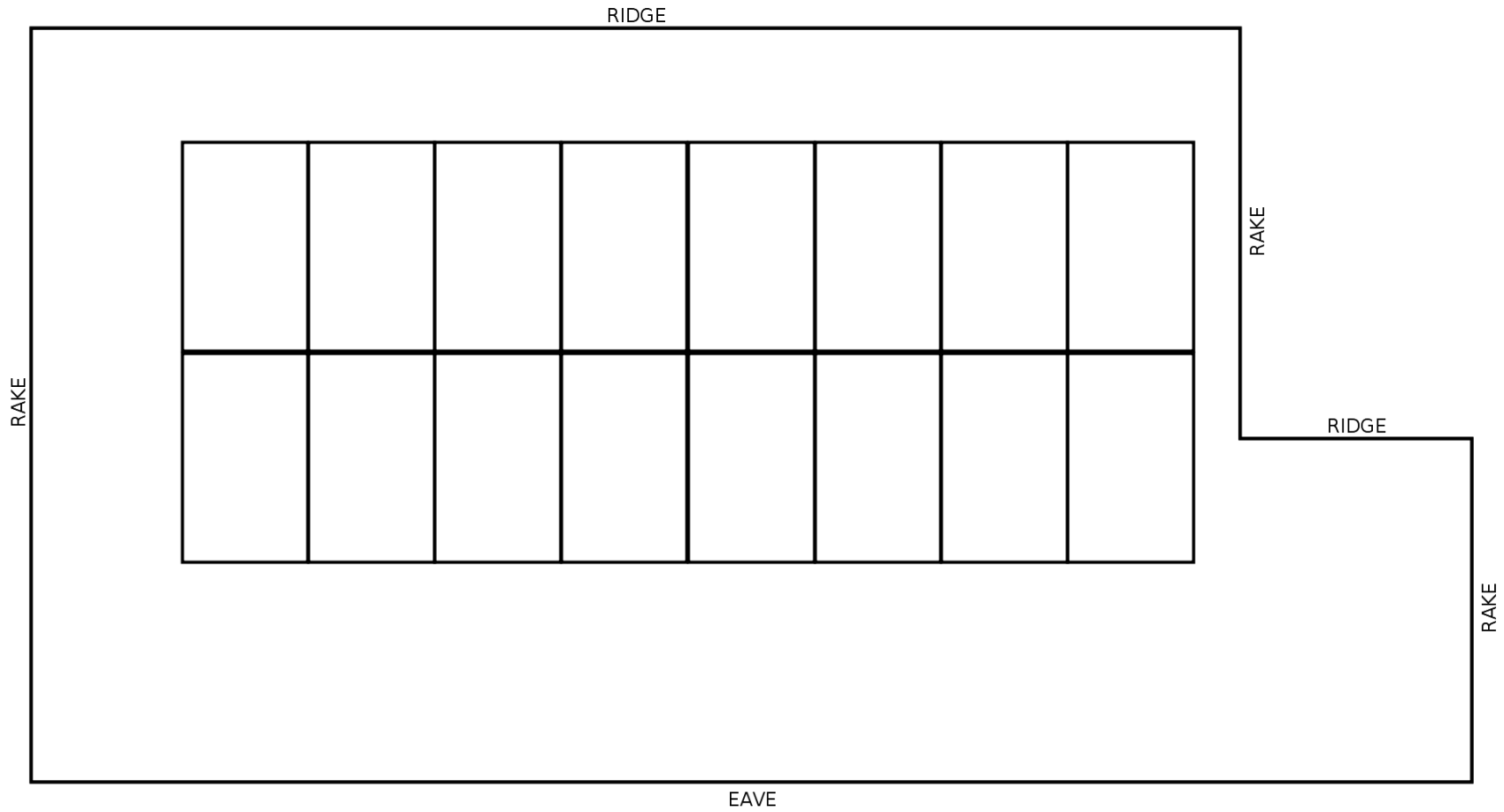
PV-4

ROOF PROPERTIES	
ROOF MATERIAL	STANDING SEAM METAL (12IN)
SLOPE	6/12 (26.6°)
MEAN ROOF HEIGHT	24.5FT
DECK SHEATHING	15/32" OSB
CONSTRUCTION	TRUSSES (2X6 TOP-CHORD), 24IN OC

MODULE MECHANICAL PROPERTIES	
MODEL	LG LG335N1K-V5
DIMENSIONS (AREA)	66.4IN X 40.0IN X 1.6IN (18.4 SQ FT)
WEIGHT	37.7LB

MOUNTING SYSTEM PROPERTIES	
MAX. MOUNT SPACING	24.0IN (ZONES 1, 2, AND 3)
MAX. ALLOW. CANTILEVER	15.8IN (ZONES 1, 2, AND 3)
GROUNDING AND BONDING	INTEGRAL GROUNDING CERTIFIED TO UL 2703 REQUIREMENTS

NOTES	
1	TRUSS LOCATIONS ARE APPROXIMATE. ACTUAL LOCATIONS MAY DIFFER AND CONTRACTOR MAY NEED TO ADJUST MOUNT LOCATIONS. IN NO CASE SHALL THE MOUNT SPACING EXCEED "MAX. MOUNT SPACING"



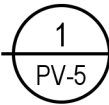
WIND ZONE I



WIND ZONE II



WIND ZONE III



ATTACHMENT PLAN (ORTHOGONAL PROJECTION)
SCALE: 3/16" = 1'

P-170653



GRID-TIED SOLAR POWER SYSTEM

JACONITA RESIDENCE

24045 CO RD 25

OAK CREEK, CO 80467

Reviewed for
Code Compliance

03/24/2022



Exp. 10/31/2023

ATTACHMENT
PLAN

DOC ID: 170653-210328-1

DATE: 2/25/22

CREATOR:

REVIEWER:

REVISIONS

PV-5

P-170653



GRID-TIED SOLAR POWER SYSTEM

JACONETTA RESIDENCE
24045 CO RD 25
OAK CREEK, CO 80467



Exp. 10/31/2023

ATTACHMENT DETAILS

DOC ID: 170653-210328-1

DATE: 2/25/22

CREATOR:

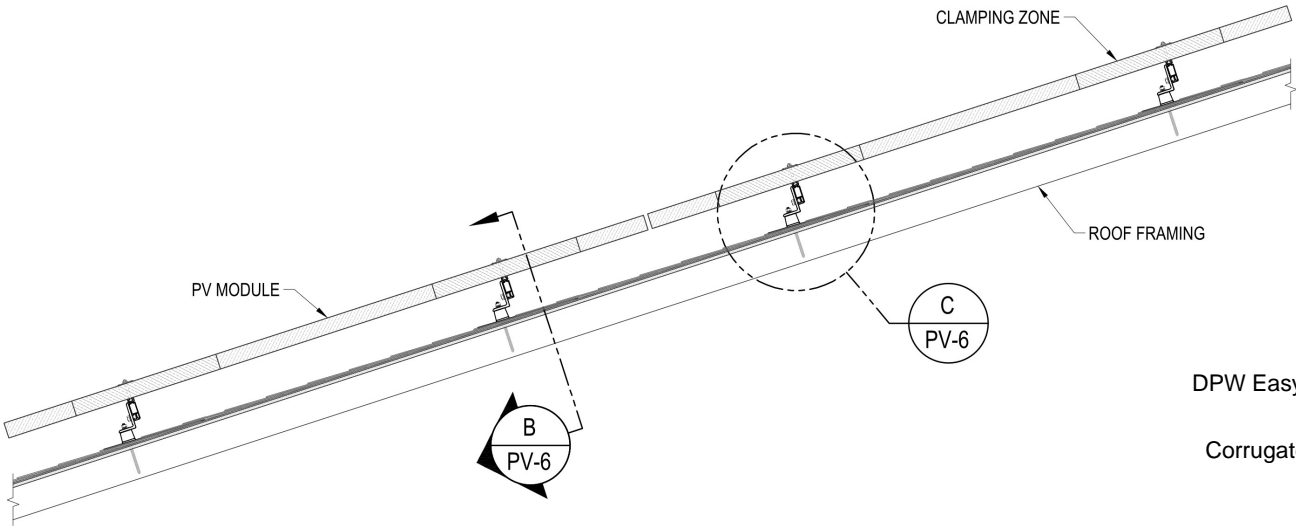
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REVISIONS

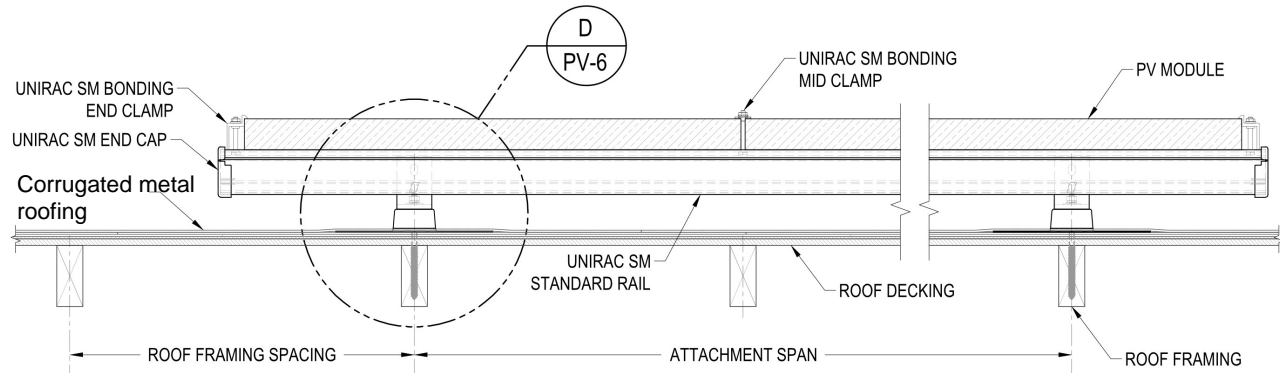
PV-6

MOUNTING SYSTEM NOTES

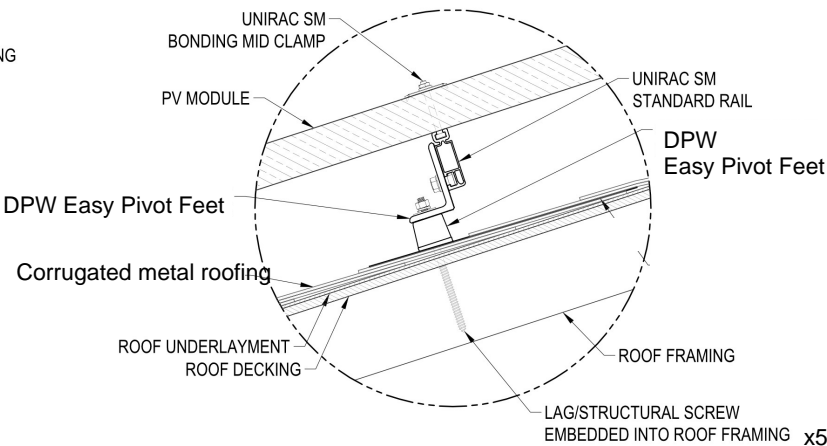
- 1 FLASHING SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS.
- 2 IF THERE IS ANY CONFLICT BETWEEN WHAT IS DEPICTED HERE AND INSTRUCTIONS PROVIDED BY A MANUFACTURER, THE MANUFACTURER'S INSTRUCTIONS SHALL SUPERCEDE.



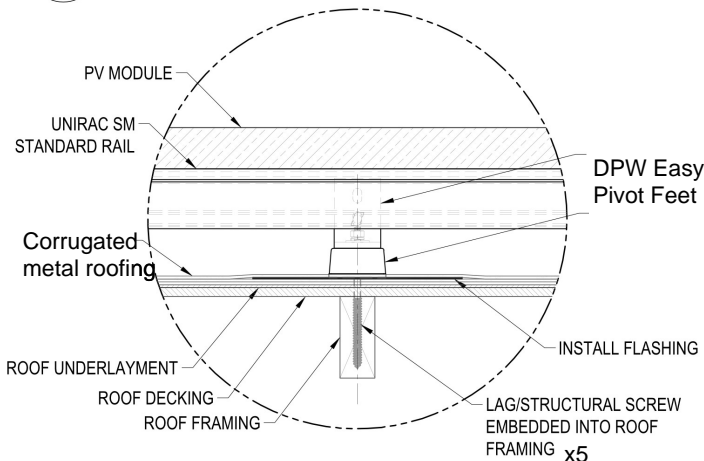
A RACKING ELEVATION (TRANSVERSE VIEW)
PV-6 SCALE: NTS



B RACKING ELEVATION (LONGITUDINAL VIEW)
PV-6 SCALE: NTS



C ATTACHMENT DETAIL (TRANSVERSE VIEW)
PV-6 SCALE: NTS



D ATTACHMENT DETAIL (LONGITUDINAL VIEW)
PV-6 SCALE: NTS



1 FIRE SAFETY PLAN
PV-7 SCALE: 1" = 10'

GENERAL NOTES	
1	ROOF ACCESS POINTS SHALL BE LOCATED IN AREAS THAT DO NOT REQUIRE THE PLACEMENT OF GROUND LADDERS OVER OPENINGS SUCH AS WINDOWS OR DOORS, AND LOCATED AT STRONG POINTS OF BUILDING CONSTRUCTION IN LOCATIONS WHERE THE ACCESS POINT DOES NOT CONFLICT WITH OVERHEAD OBSTRUCTIONS SUCH AS TREE LIMBS, WIRES OR SIGNS. (IFC 605.11.1.1)
2	PANELS AND MODULES INSTALLED ON GROUP R-3 BUILDINGS WITH A SINGLE RIDGE SHALL BE LOCATED IN A MANNER THAT PROVIDES TWO, 3-FOOT-WIDE ACCESS PATHWAYS FROM THE EAVE TO THE RIDGE ON EACH ROOF SLOPE WHERE PANELS AND MODULES ARE LOCATED. (IFC 605.11.1.2.3)
3	PANELS AND MODULES INSTALLED ON GROUP R-3 BUILDINGS SHALL BE LOCATED NOT LESS THAN 3 FEET (914 MM) FROM THE RIDGE IN ORDER TO ALLOW FOR FIRE DEPARTMENT SMOKE VENTILATION OPERATIONS, EXCEPT IN SUCH CASES WHERE AN ALTERNATIVE VENTILATION METHOD APPROVED BY THE FIRE CHIEF HAS BEEN PROVIDED OR WHERE THE FIRE CHIEF HAS DETERMINED VERTICAL VENTILATION TECHNIQUES WILL NOT BE EMPLOYED. (IFC 605.11.1.2.5)

- 1 3.0 FT. WIDE FIRE ACCESS PATHWAY, PER IFC 605.11.1.2.3
- 2 3.0 FT. WIDE SMOKE-VENTILATION SETBACK, PER IFC 605.11.1.2.5
- 3 PV MODULES INSTALLED ON ROOF WITH UNIRAC SOLARMOUNT MOUNTING SYSTEM. THE MOUNTING SYSTEM IS UL 1703 CLASS A FIRE RATED ON A 6/12 SLOPED ROOF WHEN INSTALLED WITH TYPE 1, 2, 3, OR 10 MODULES. THE LG LG335N1K-V5 IS TYPE 2.
- 4 3.0 FT. WIDE SMOKE-VENTILATION SETBACK, PER IFC 605.11.1.2.5
- 5 3.0 FT. WIDE FIRE ACCESS PATHWAY, PER IFC 605.11.1.2.3
- 6 ROOF ACCESS POINT
- 7 ROOF ACCESS POINT
- 8 CABLES, WHEN RUN BETWEEN ARRAYS, SHALL BE ENCLOSED IN CONDUIT.

P-170653

ACTIVE ENERGIES SOLAR, LLC

GRID-TIED SOLAR POWER SYSTEM

JACONITA RESIDENCE

24045 CO RD 25

OAK CREEK, CO 80467

Reviewed for Code Compliance

03/24/2022

FIRE SAFETY PLAN

DOC ID: 170653-210328-1

DATE: 2/25/22

CREATOR:

REVIEWER:

REVISIONS

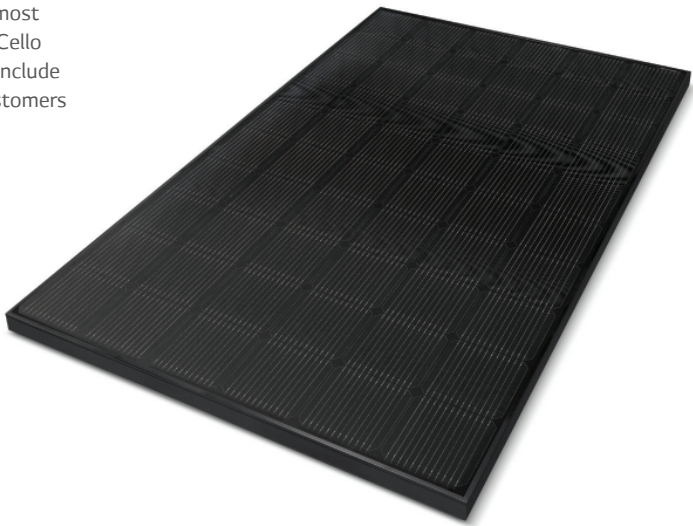
PV-7

LG NeON[®] 2 Black

LG335N1K-V5

335W

The LG NeON[®] 2 is LG's best selling solar module, and is one of the most powerful and versatile modules on the market today. Featuring LG's Cello Technology, the LG NeON[®] 2 increases power output. New updates include an extended performance warranty from 86% to 90.08% to give customers higher performance and reliability.



Features



Enhanced Performance Warranty

LG NeON[®] 2 Black has an enhanced performance warranty. After 25 years, LG NeON[®] 2 Black is guaranteed to at least 90.08% of initial performance.



25-Year Limited Product Warranty

The NeON[®] 2 Black is covered by a 25-year limited product warranty. In addition, up to \$450 of labor costs will be covered in the rare case that a module needs to be repaired or replaced.



Solid Performance on Hot Days

LG NeON[®] 2 Black performs well on hot days due to its low temperature coefficient.



Roof Aesthetics

LG NeON[®] 2 Black has been designed with aesthetics in mind using thinner wires that appear all black at a distance.



Bifacial Energy Yield

LG NeON[®] 2 modules use a highly efficient bifacial solar cell, "NeON" applied Cello technology for better energy production than standard monofacial PV module.

When you go solar, ask for the brand you can trust: LG Solar

About LG Electronics USA, Inc.

LG Electronics is a global leader in electronic products in the clean energy markets by offering solar PV panels and energy storage systems. The company first embarked on a solar energy source research program in 1985, supported by LG Group's vast experience in the semi-conductor, LCD, chemistry and materials industries. In 2010, LG Solar successfully released its first MonoX[®] series to the market, which is now available in 32 countries. The NeON[®] (previous MonoX[®] NeON), NeON[®]2, NeON[®]2 BiFacial won the "Intersolar AWARD" in 2013, 2015 and 2016, which demonstrates LG's leadership and innovation in the solar industry.



LG NeON[®] 2 Black

LG335N1K-V5

General Data

Cell Properties (Material/Type)	Monocrystalline/N-type
Cell Maker	LG
Cell Configuration	60 Cells (6 x 10)
Number of Busbars	12EA
Module Dimensions (L x W x H)	1,686mm x 1,016mm x 40 mm
Weight	17.1 kg
Glass (Material)	Tempered Glass with AR Coating
Backsheet (Color)	Black
Frame (Material)	Anodized Aluminium
Junction Box (Protection Degree)	IP 68 with 3 Bypass Diodes
Cables (Length)	1,000mm x 2EA
Connector (Type/Maker)	MC 4/MC

Certifications and Warranty

Certifications	IEC 61215-1/-1-1/2:2016, IEC 61730-1/2:2016, UL 1703
	ISO 9001, ISO 14001, ISO 50001
	OHSAS 18001
Salt Mist Corrosion Test	IEC 62701:2012 Severity 6
Ammonia Corrosion Test	IEC 62716:2013
Module Fire Performance	Type 2 (UL 1703)
Fire Rating	Class C (UL 790, ULC/ORD C 1703)
Solar Module Product Warranty	25 Year Limited
Solar Module Output Warranty	Linear Warranty*

*Improved: 1st year 98%, from 2-24th year: 0.33%/year down, 90.08% at year 25

Temperature Characteristics

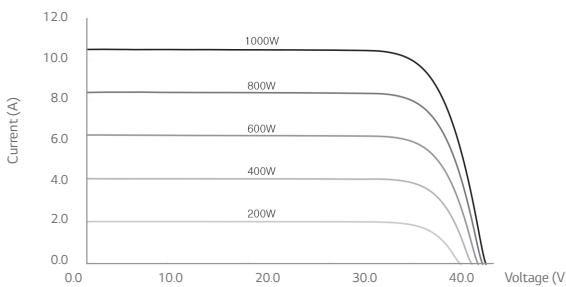
NMOT*	[°C]	42 ± 3
Pmax	[%/°C]	-0.36
Voc	[%/°C]	-0.27
Isc	[%/°C]	0.03

*NMOT (Nominal Module Operating Temperature): Irradiance 800 W/m², Ambient temperature 20°C, Wind speed 1 m/s, Spectrum AM 1.5

Electrical Properties (NMOT)

Model	LG335N1K-V5	
Maximum Power (Pmax)	[W]	250
MPP Voltage (Vmpp)	[V]	32.3
MPP Current (Impp)	[A]	7.75
Open Circuit Voltage (Voc)	[V]	38.6
Short Circuit Current (Isc)	[A]	8.29

I-V Curves



Electrical Properties (STC*)

Model	LG335N1K-V5	
Maximum Power (Pmax)	[W]	335
MPP Voltage (Vmpp)	[V]	34.5
MPP Current (Impp)	[A]	9.72
Open Circuit Voltage (Voc ± 5%)	[V]	41.1
Short Circuit Current (Isc ± 5%)	[A]	10.31
Module Efficiency	[%]	19.6
Bifaciality Coefficient of Power	[%]	10
Power Tolerance	[%]	±3

*STC (Standard Test Condition): Irradiance 1000 W/m², Cell temperature 25°C, AM 1.5, Measure Tolerance: ±3%.

Operating Conditions

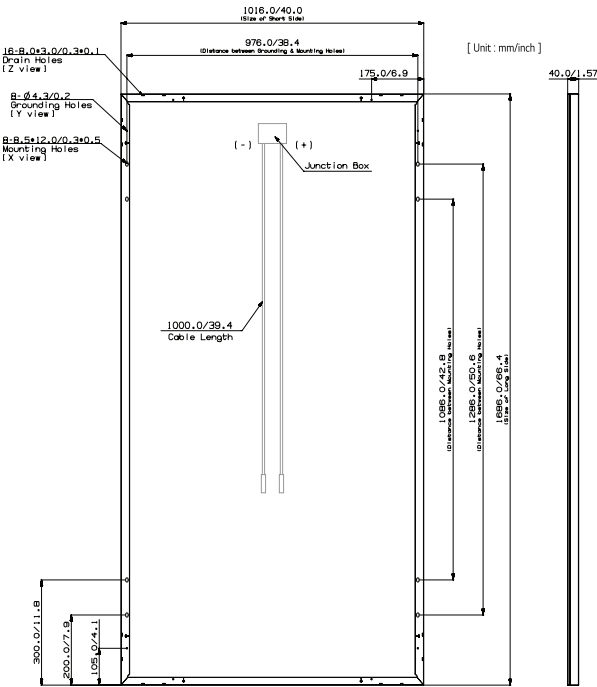
Operating Temperature	[°C]	-30 ~ +90
Maximum System Voltage	[V]	1,000 (IEC), 1,000 (IEC)
Maximum Series Fuse Rating	[A]	20
Mechanical Test Load (Front)	[Pa/psf]	5,400/113
Mechanical Test Load (Rear)	[Pa/psf]	4,000/84

*Manufacturer Declaration according to IEC 61215:2005 Mechanical Test Loads 5,400 Pa/4,000 Pa based on IEC 61215-2:2016 (Test Load = Design Load x Safety Factor (1.5))

Packaging Configuration

Number of Modules per Pallet	[EA]	25
Number of Modules per 40' Container	[EA]	650
Number of Modules per 53' Container	[EA]	850
Packaging Box Dimensions (L x W x H)	[mm]	1750 x 1,120 x 1,221
Packaging Box Dimensions (L x W x H)	[in]	69 x 44.25 x 48.25
Packaging Box Gross Weight	[kg]	485
Packaging Box Gross Weight	[lb]	1,070

Dimensions (mm/inch)



LG Electronics USA, Inc.
Solar Business Division
2000 Millbrook Drive
Lincolnshire, IL 60069
www.lg-solar.com

Product specifications are subject to change without notice.
LG335N1K-V5.pdf
051520

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Power Optimizer

For North America

P320 / P340 / P370 / P400 / P405 / P505



POWER OPTIMIZER

PV power optimization at the module-level

- Specifically designed to work with SolarEdge inverters
- Up to 25% more energy
- Superior efficiency (99.5%)
- Mitigates all types of module mismatch losses, from manufacturing tolerance to partial shading
- Flexible system design for maximum space utilization
- Fast installation with a single bolt
- Next generation maintenance with module-level monitoring
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)
- Module-level voltage shutdown for installer and firefighter safety

solaredge.com



Power Optimizer

For North America

P320 / P340 / P370 / P400 / P405 / P505

Optimizer model (typical module compatibility)	P320 (for 60-cell modules)	P340 (for high-power 60-cell modules)	P370 (for higher-power 60 and 72-cell modules)	P400 (for 72 & 96-cell modules)	P405 (for thin film modules)	P505 (for higher current modules)	
INPUT							
Rated Input DC Power ⁽¹⁾	320	340	370	400	405	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48		60	80	125 ⁽²⁾	83 ⁽²⁾	Vdc
MPPT Operating Range	8 - 48		8 - 60	8 - 80	12.5 - 105	12.5 - 83	Vdc
Maximum Short Circuit Current (Isc)	11			10.1		14	Adc
Maximum DC Input Current	13.75			12.63		17.5	Adc
Maximum Efficiency	99.5						%
Weighted Efficiency	98.8					98.6	%
Overvoltage Category	II						
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER)							
Maximum Output Current	15						Adc
Maximum Output Voltage	60				85		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF)							
Safety Output Voltage per Power Optimizer	1 ± 0.1						Vdc
STANDARD COMPLIANCE							
EMC	FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3						
Safety	IEC62109-1 (class II safety), UL1741						
RoHS	Yes						
INSTALLATION SPECIFICATIONS							
Maximum Allowed System Voltage	1000						Vdc
Compatible inverters	All SolarEdge Single Phase and Three Phase inverters						
Dimensions (W x L x H)	128 x 152 x 28 / 5 x 5.97 x 1.1			128 x 152 x 36 / 5 x 5.97 x 1.42	128 x 152 x 50 / 5 x 5.97 x 1.96	128 x 152 x 59 / 5 x 5.97 x 2.32	mm / in
Weight (including cables)	630 / 1.4			750 / 1.7	845 / 1.9	1064 / 2.3	gr / lb
Input Connector	MC4 ⁽³⁾						
Output Wire Type / Connector	Double Insulated; MC4						
Output Wire Length	0.95 / 3.0		1.2 / 3.9				m / ft
Input Wire Length	0.16 / 0.52						m / ft
Operating Temperature Range	-40 - +85 / -40 - +185						°C / °F
Protection Rating	IP68 / NEMA6P						
Relative Humidity	0 - 100						%

⁽¹⁾ Rated STC power of the module. Module of up to +5% power tolerance allowed

⁽²⁾ NEC 2017 requires max input voltage be not more than 80V

⁽³⁾ For other connector types please contact SolarEdge

PV System Design Using a SolarEdge Inverter ^{(4),(5)}		Single Phase HD-Wave	Single phase	Three Phase 208V	Three Phase 480V	
Minimum String Length (Power Optimizers)	P320, P340, P370, P400	8		10	18	
	P405 / P505	6		8	14	
Maximum String Length (Power Optimizers)		25		25	50 ⁽⁶⁾	
Maximum Power per String		5700 (6000 with SE7600-US - SE11400-US)	5250	6000 ⁽⁷⁾	12750 ⁽⁸⁾	W
Parallel Strings of Different Lengths or Orientations		Yes				

⁽⁴⁾ For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf

⁽⁵⁾ It is not allowed to mix P405/P505 with P320/P340/P370/P400 in one string

⁽⁶⁾ A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement

⁽⁷⁾ For SE14.4KUS/SE43.2KUS: It is allowed to install up to 6,500W per string when 3 strings are connected to the inverter (3 strings per unit for SE43.2KUS) and when the maximum power difference between the strings is up to 1,000W

⁽⁸⁾ For SE30KUS/SE33.3KUS/SE66.6KUS/SE100KUS: It is allowed to install up to 15,000W per string when 3 strings are connected to the inverter (3 strings per unit for SE66.6KUS/SE100KUS) and when the maximum power difference between the strings is up to 2,000W

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03/24/2022

Product data sheet

Characteristics

DU221RB

SWITCH NOT FUSIBLE GD 240V 30A 2P

NEMA3R

Stock Code: Stock - Normally stocked in distribution facility

Price*: 177.00 USD



Main

Product	Single Throw Safety Switch
Current Rating	30 A
Certifications	UL listed
Enclosure Rating	NEMA 3R
Disconnect Type	Non-fusible disconnect
Factory Installed Neutral	None
Mounting Type	Surface
Number of Poles	2
Electrical Connection	Lugs
Duty Rating	General duty

Ordering and shipping details

Category	00106 - D & DU SW,NEMA3R, 30-200A
Discount Schedule	DE1A
GTIN	00785901490340
Nbr. of units in pkg.	1
Package weight(Lbs)	4.8600000000000003
Returnability	Y
Country of origin	MX

Contractual warranty

Period	18 months
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Product Life Status :	Commercialised
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The information provided in this documentation contains general descriptions and/or technical characteristics of the products contained herein. 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. It is the duty of any such user or integrator to perform the appropriate and complete risk analysis, evaluation and testing of the products with respect to the relevant specific application or use thereof. Neither Schneider Electric Industries SAS nor any of its affiliates or subsidiaries shall be responsible or liable for misuse of the information contained herein. *Prices are indicative

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Single Phase Inverter with HD-Wave Technology

for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US /
SE7600H-US / SE10000H-US / SE11400H-US

12-25
YEAR
WARRANTY



INVERTERS

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking 99% weighted efficiency
- Quick and easy inverter commissioning directly from a smartphone using the SolarEdge SetApp
- Fixed voltage inverter for longer strings
- Integrated arc fault protection and rapid shutdown for NEC 2014 and 2017, per article 690.11 and 690.12
- UL1741 SA certified, for CPUC Rule 21 grid compliance
- Small, lightweight, and easy to install both outdoors or indoors
- Built-in module-level monitoring
- Optional: Faster installations with built-in consumption metering (1% accuracy) and production revenue grade metering (0.5% accuracy, ANSI C12.20)

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solaredge

/ Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US/
SE7600H-US / SE10000H-US / SE11400H-US

MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
APPLICABLE TO INVERTERS WITH PART NUMBER	SEXXXXH-XXXXXBXX4							
OUTPUT								
Rated AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
Maximum AC Power Output	3000	3800 @ 240V 3300 @ 208V	5000	6000 @ 240V 5000 @ 208V	7600	10000	11400 @ 240V 10000 @ 208V	VA
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	✓	V _{AC}
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	V _{AC}
AC Frequency (Nominal)	59.3 - 60 - 60.5 ⁽¹⁾							Hz
Maximum Continuous Output Current @240V	12.5	16	21	25	32	42	47.5	A
Maximum Continuous Output Current @208V	-	16	-	24	-	-	48.5	A
Power Factor	1, Adjustable - 0.85 to 0.85							
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							
INPUT								
Maximum DC Power @240V	4650	5900	7750	9300	11800	15500	17650	W
Maximum DC Power @208V	-	5100	-	7750	-	-	15500	W
Transformer-less, Ungrounded	Yes							
Maximum Input Voltage	480							V _{dc}
Nominal DC Input Voltage	380				400			V _{dc}
Maximum Input Current @240V ⁽²⁾	8.5	10.5	13.5	16.5	20	27	30.5	A _{dc}
Maximum Input Current @208V ⁽²⁾	-	9	-	13.5	-	-	27	A _{dc}
Max. Input Short Circuit Current	45							A _{dc}
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600k Ω Sensitivity							
Maximum Inverter Efficiency	99	99.2						%
CEC Weighted Efficiency	99						99 @ 240V 98.5 @ 208V	%
Nighttime Power Consumption	< 2.5							W

⁽¹⁾ For other regional settings please contact SolarEdge support

⁽²⁾ A higher current source may be used; the inverter will limit its input current to the values stated

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Single Phase Inverter with HD-Wave Technology for North America

SE3000H-US / SE3800H-US / SE5000H-US / SE6000H-US/
SE7600H-US / SE10000H-US / SE11400H-US

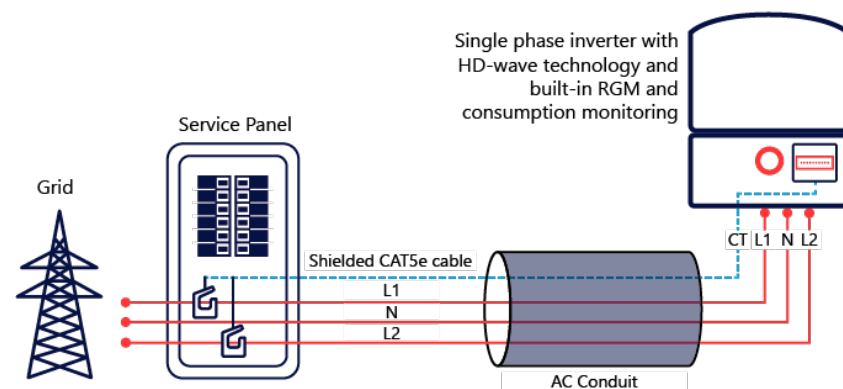
MODEL NUMBER	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US
ADDITIONAL FEATURES							
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)						
Revenue Grade Metering, ANSI C12.20	Optional ⁽³⁾						
Consumption metering							
Inverter Commissioning	With the SetApp mobile application using Built-in Wi-Fi Access Point for Local Connection						
Rapid Shutdown - NEC 2014 and 2017 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect						
STANDARD COMPLIANCE							
Safety	UL1741, UL1741 SA, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07						
Grid Connection Standards	IEEE1547, Rule 21, Rule 14 (HI)						
Emissions	FCC Part 15 Class B						
INSTALLATION SPECIFICATIONS							
AC Output Conduit Size / AWG Range	1" Maximum / 14-6 AWG				1" Maximum /14-4 AWG		
DC Input Conduit Size / # of Strings / AWG Range	1" Maximum / 1-2 strings / 14-6 AWG				1" Maximum / 1-3 strings / 14-6 AWG		
Dimensions with Safety Switch (HxWxD)	17.7 x 14.6 x 6.8 / 450 x 370 x 174				21.3 x 14.6 x 7.3 / 540 x 370 x 185		in / mm
Weight with Safety Switch	22 / 10	25.1 / 11.4	26.2 / 11.9		38.8 / 17.6		lb / kg
Noise	< 25			<50		dBA	
Cooling	Natural Convection						
Operating Temperature Range	-40 to +140 / -40 to +60 ⁽⁴⁾						°F / °C
Protection Rating	NEMA 4X (Inverter with Safety Switch)						

⁽¹⁾ Inverter with Revenue Grade Meter P/N: SExxxxH-US000BNC4; Inverter with Revenue Grade Production and Consumption Meter P/N: SExxxxH-US000BNI4. For consumption metering, current transformers should be ordered separately: SEACT0750-200NA-20 or SEACT0750-400NA-20. 20 units per box

⁽⁴⁾ Full power up to at least 50°C / 122°F; for power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>

How to Enable Consumption Monitoring

By simply wiring current transformers through the inverter's existing AC conduits and connecting them to the service panel, homeowners will gain full insight into their household energy usage helping them to avoid high electricity bills



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RoHS

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SOLARMOUNT defined the standard in solar racking. New enhancements are designed to get installers off the roof faster than ever before. Components are pre-assembled and optimized to reduce installation steps and save labor time. Our new grounding & bonding process eliminates copper wire and grounding straps to reduce costs. Utilize the microinverter mount with a wire management clip for an easier installation.



LOSE ALL OF THE COPPER & LUGS
System grounding through Enphase microinverters and trunk cables



SMALL IS THE NEXT NEW BIG THING
Light Rail is Fully Compatibility with all SM Components



ENHANCED DESIGN & LAYOUT TOOLS
Now Featuring Google Map Capabilities within U-Builder

GET OFF THE ROOF FASTER THAN EVER BEFORE
OPTIMIZED COMPONENTS • VERSATILITY • DESIGN TOOLS • QUALITY PROVIDER



OPTIMIZED COMPONENTS

INTEGRATED BONDING & PRE-ASSEMBLED PARTS

Components are pre-assembled and optimized to reduce installation steps and save labor time. Our new grounding & bonding process eliminates copper wire and grounding straps or bonding jumpers to reduce costs. Utilize the microinverter mount with a wire management clip for an easier installation.

VERSATILITY

ONE PRODUCT - MANY APPLICATIONS

Quickly set modules flush to the roof or at a desired tilt angle. Change module orientation to portrait or landscape while securing a large variety of framed modules on flat, low sloped or steep pitched roofs. Available in mill, clear and dark anodized finishes to outperform your projects financial and aesthetic aspirations.

AUTOMATED DESIGN TOOL

DESIGN PLATFORM AT YOUR SERVICE

Creating a bill of materials is just a few clicks away with U-Builder, a powerful online tool that streamlines the process of designing a code compliant solar mounting system. Save time by creating a user profile, and recall preferences and projects automatically when you log in. You will enjoy the ability to share projects with customers; there's no need to print results and send to a distributor, just click and share.



UNIRAC CUSTOMER SERVICE MEANS THE HIGHEST LEVEL OF PRODUCT SUPPORT

UNMATCHED EXPERIENCE

CERTIFIED QUALITY

ENGINEERING EXCELLENCE

BANKABLE WARRANTY

DESIGN TOOLS

PERMIT DOCUMENTATION

TECHNICAL SUPPORT

Unirac's technical support team is dedicated to answering questions & addressing issues in real time. An online library of documents including engineering reports, stamped letters and technical data sheets greatly simplifies your permitting and project planning process.

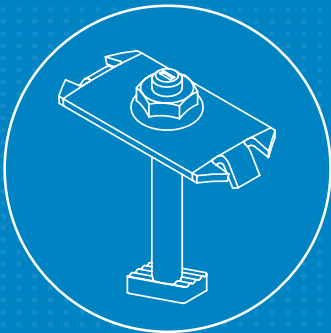
CERTIFIED QUALITY PROVIDER

Unirac is the only PV mounting vendor with ISO certifications for 9001:2008, 14001:2004 and OHSAS 18001:2007, which means we deliver the highest standards for fit, form, and function. These certifications demonstrate our excellence and commitment to first class business practices.

BANKABLE WARRANTY

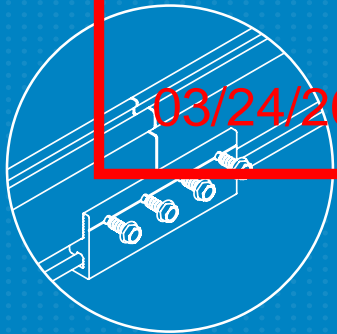
As a Hilti Group Company, Unirac has the financial strength to back our products and reduce your risk. Have peace of mind knowing you are receiving products of exceptional quality. SOLARMOUNT is covered by a 10 year limited product warranty and a 5 year limited finish warranty.

PROTECT YOUR REPUTATION WITH QUALITY RACKING SOLUTIONS BACKED BY ENGINEERING EXCELLENCE AND A SUPERIOR SUPPLY CHAIN
PUB 16JAND4 - DIGITAL UPDATES

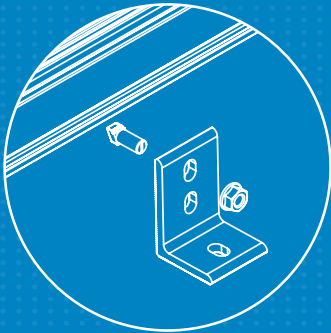


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03/24/2022

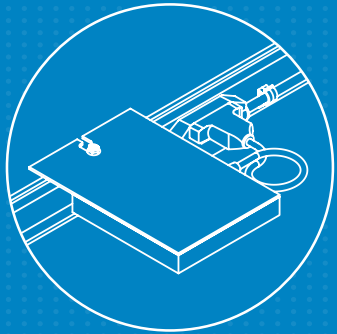
INTEGRATED BONDING
SPICE BAR



INTEGRATED BONDING
L-FOOT w/ T-BOLT



INTEGRATED BONDING
MICROINVERTER MOUNT w/
WIRE MANAGEMENT





September 21, 2016

To: Unirac, Inc.
1411 Broadway Blvd NE
Albuquerque, MN 87102-1545

Attn: Engineering Department,

Re: Engineering Certification for Unirac's SolarMount™ Design & Engineering Guide and U-Builder

DOTec Engineering has reviewed and certified Unirac's SM SolarMount™ "Design & Engineering Guide: Flush-To-Roof Design" and the "Installation Guide", including Unirac's three rail types, Solarmount Light, Solarmount Rail and Solarmount HD.

All information, data, and analysis contained within the D & E Guide and U-Builder are based on, and comply with the following:

- I. ASCE/SEI 7-10 – Minimum Design Loads for Buildings and other Structures
- II. 2015 International Building Code (IBC)
- III. 2015 International Residential Code (IRC)
- IV. Steel Construction Manual, 13th Ed., American Institute of Steel Construction
- V. Aluminum Design Manual, The Aluminum Association, 2005

This certification excludes connections to the building structures and the effects on the building structure components.

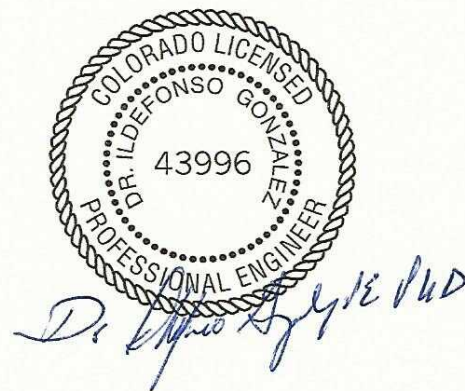
This letter certifies that the structural calculations contained within Unirac's SolarMount Design & Engineering Guide and U-Builder are in compliance with the above Codes.

Please call if you have any questions or concerns.

Sincerely,

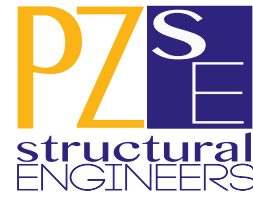
A handwritten signature in blue ink, appearing to read 'Dr. Ildefonso Gonzalez, P.E. PhD'.

Dr. Ildefonso "Al" Gonzalez, P.E. PhD
Colorado #43996
DOTec Engineering, Inc.
St. Charles, MO



Reviewed for
Code Compliance

03/24/2022



March 31, 2020

Unirac
1411 Broadway Blvd. NE
Albuquerque, NM 87102

Attn.: Unirac - Engineering Department

Re: Engineering Certification for the Unirac U-Builder 2.0 SOLARMOUNT Flush Rail

PZSE, Inc. - Structural Engineers has reviewed the Unirac SOLARMOUNT rails, proprietary mounting system constructed from modular parts which is intended for rooftop installation of solar photovoltaic (PV) panels; and has reviewed the U-builder Online tool. This U-Builder software includes analysis for the SOLARMOUNT LIGHT rail, SOLARMOUNT STANDARD rail, and SOLARMOUNT HEAVY DUTY rail with Standard and Pro Series hardware. All information, data and analysis contained within are based on, and comply with the following codes and typical specifications:

1. Minimum Design Loads for Buildings and other Structures, ASCE/SEI 7-05, ASCE/SEI 7-10, ASCE/SEI 7-16
2. 2006-2018 International Building Code, by International Code Council, Inc. w/ Provisions from SEAOC PV-2 2017.
3. 2006-2018 International Residential Code, by International Code Council, Inc. w/ Provisions from SEAOC PV-2 2017.
4. AC428, Acceptance Criteria for Modular Framing Systems Used to Support Photovoltaic (PV) Panels, November 1, 2012 by ICC-ES.
5. 2015 Aluminum Design Manual, by The Aluminum Association, 2015

Following are typical specifications to meet the above code requirements:

Design Criteria:	Ground Snow Load = 0 - 100 (psf) Basic Wind Speed = 85 - 190 (mph) Roof Mean Height = 0 - 60 (ft) Roof Pitch = 0 - 45 (degrees) Exposure Category = B, C & D
Attachment Spacing:	Per U-builder Engineering report.
Cantilever:	Maximum cantilever length is L/3, where "L" is the span noted in the U-Builder online tool.
Clearance:	2" to 10" clear from top of roof to top of PV panel.
Tolerance(s):	1.0" tolerance for any specified dimension in this report is allowed for installation.
Installation Orientation:	See SOLARMOUNT Rail Flush Installation Guide. Landscape - PV Panel long dimension is parallel to ridge/eave line of roof and the PV panel is mounted on the long side. Portrait - PV Panel short dimension is parallel to ridge/eave line of roof and the PV panel is mounted on the short side.



Components and Cladding Roof Zones:

The Components and Cladding Roof Zones shall be determined based on ASCE 7-05, ASCE 7-10 & 7-16 Component and Cladding design.

- Notes:
- 1) U-builder Online tool analysis is only for Unirac SM SOLARMOUNT Rail Flush systems only and does not include roof capacity check.
 - 2) Risk Category II per ASCE 7-16.
 - 3) Topographic factor, k_{zt} is 1.0.
 - 4) Array Edge Factor $Y_E = 1.5$
 - 5) Average parapet height is 0.0 ft.
 - 6) Wind speeds are LRFD values.
 - 7) Attachment spacing(s) apply to a seismic design category E or less.

Design Responsibility:

The U-Builder design software is intended to be used under the responsible charge of a registered design professional where required by the authority having jurisdiction. In all cases, this U-builder software should be used under the direction of a design professional with sufficient structural engineering knowledge and experience to be able to:

- Evaluate whether the U-Builder Software is applicable to the project, and
- Understand and determine the appropriate values for all input parameters of the U-Builder software.

This letter certifies that the Unirac SM SOLARMOUNT Rails Flush, when installed according to the U-Builder engineering report and the manufacture specifications, is in compliance with the above codes and loading criteria.

This certification excludes evaluation of the following components:

- 1) The structure to support the loads imposed on the building by the array; including, but not limited to: strength and deflection of structural framing members, fastening and/or strength of roofing materials, and/or the effects of snow accumulation on the structure.
- 2) The attachment of the SM SOLARMOUNT Rails to the existing structure.
- 3) The capacity of the solar module frame to resist the loads.

This requires additional knowledge of the building and is outside the scope of the certification of this racking system.

If you have any questions on the above, do not hesitate to call.

Prepared by:
PZSE, Inc. – Structural Engineers
Roseville, CA



Reviewed for
Code Compliance

03/24/2022

Certificate



Certificate no.

US 82160015 01

License Holder:
Unirac Inc.
1411 Broadway NE
Albuquerque NM 87102
USA

Manufacturing Plant:
Unirac Inc.
1411 Broadway NE
Albuquerque NM 87102
USA

Test report no.: USA- 31440029 005

Client Reference: Tom Young

Tested to: UL 2703:2015

Certified Product: Module Rack Mounting System

License Fee - Units

Model Designation: SolarMount (SM)

7

Max System Voltage of PV Module: 1000 VDC
Max Size of PV Module: 20.8 sq.ft. surface area
Max Overcurrent Protection Rating of PV Module:
30 A when using the qualified grounding lugs;
20 A when using the Enphase micro inverter EGC.

Fire Rating: Class A when installed with
Type 1, Type 2, Type3, or Type 10 fire rated modules.

(continued)

Appendix: 1,1-5

Licensed Test mark:



Date of Issue
(day/mo/yr)
27/07/2016

Certificate



Certificate no.

US 82160015 02

License Holder:
Unirac Inc.
1411 Broadway NE
Albuquerque NM 87102
USA

Manufacturing Plant:
Unirac Inc.
1411 Broadway NE
Albuquerque NM 87102
USA

Test report no.: USA- 31440029 005

Client Reference: Tom Young

Tested to: UL 2703:2015

Certified Product: Module Rack Mounting System

License Fee - Units

(continued)

7

Modules Qualified for Mechanical Load:	Design Load (psf)		
	Pos	Neg	Down-Slope
Trina Solar TSM-255PA05.08	112	50	N/T
Centrosolar TP6 250 SW and E 250B	112	50	N/T
TSMC Solar TS-150C2	35	35	N/T
SunPower SPR-E20-327	112	50	N/T
Hyundai Solar HiS-M300MI & HiS-S300MI	112	50	10

Models from same series with same frame are qualified if
their area is < or = qualified module area. (continued)

Appendix: 1,1-5

Licensed Test mark:



Date of Issue
(day/mo/yr)
27/07/2016

Reviewed for
Code Compliance

03/24/2022

Certificate



Certificate no.

US 82160015 03

License Holder:

Unirac Inc.
1411 Broadway NE
Albuquerque NM 87102
USA

Manufacturing Plant:

Unirac Inc.
1411 Broadway NE
Albuquerque NM 87102
USA

Test report no.: USA-31440029 005

Client Reference: Tom Young

Tested to: UL 2703:2015

Certified Product: Module Rack Mounting System

License Fee - Units

(continued)

7

Modules Qualified for Electrical Bonding:

AU Optronics (BenQ Solar)	PM Series
Canadian Solar	CS5A-M, CS6P-M, CS6P-P, CSX-P, CS6X-P, ELPS CS6P-MM, ELPS CS6A-MM
Centrosolar America	C-Series, E-Series
ET Solar	ET AC Module, ET Module
Hanwha SolarOne	HSL 60
Hyundai Heavy Industries	MG, RG, RW, and HiS Series
Kyocera	KD-F Series
LG Electronics	Mono Neon, Mono X
Phono Solar Technology	All Std Modules (continued)

Appendix: 1,1-5

Licensed Test mark:



Date of Issue

(day/mo/yr)
27/07/2016

Certificate



Certificate no.

US 82160015 05

License Holder:

Unirac Inc.
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Albuquerque NM 87102
USA

Manufacturing Plant:

Unirac Inc.
1411 Broadway NE
Albuquerque NM 87102
USA

Test report no.: USA-31440029 006

Client Reference: Tom Young

Tested to: UL 2703:2015

Certified Product: Module Rack Mounting System

License Fee - Units

Additional Modules Qualified for Electrical Bonding:

7

Canadian Solar	CS6U-P or -M, CS6K-P, -M, or -MS
Flextronics	FXS
Jinko Solar	Jinko YY: JKMxxxP-YY (YY=72 or 60) Jinko Eagle YY: JKMxxxPP-YY (YY=72 or 60) Jinko Eagle MXY: JKMSxxxPP-YY (YY=72 or 60) Jinko 60: JKMxxxPP-60 Jinko Black 60: JKMxxxPP-60B
Kyocera	KU-60 Series, KU2xx-6MCA,
LG Electronics	NeON 2 LGxxxYY (YY=N1C-G4 or N2W-G4), NeON LGxxxYY (YY=N2W-B3 or S1C-G4) (continued)

Appendix: 1,1-5

Licensed Test mark:



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03/24/2022



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DPW POWERRAIL PEF-1.5 1.5" EASY PIVOT FEET
- HOME

RACKING AND MOUNTING

ATTACHMENTS

DPW POWERRAIL PEF-1.5 1.5" EASY PIVOT FEET

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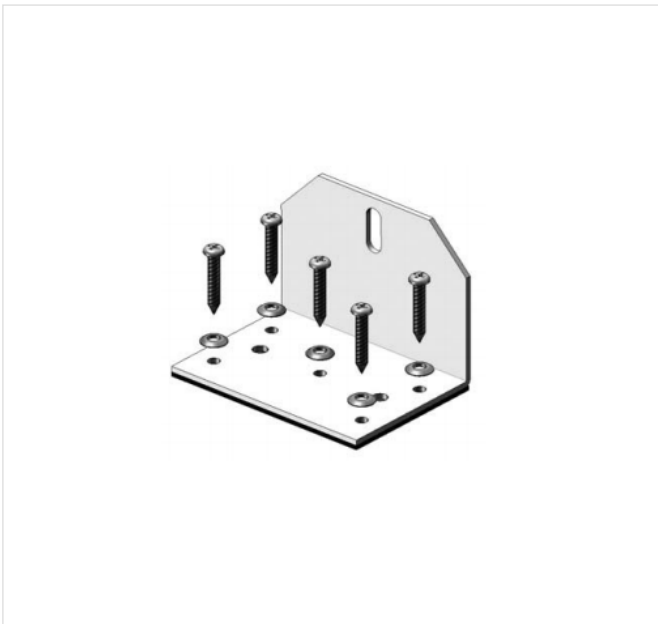
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SOLAR RESOURCES



DPW POWERRAIL PEF-1.5 1.5" EASY PIVOT FEET



DPW SOLAR

MSRP: ~~\$25.00~~

\$14.70

(YOU SAVE \$10.30)

SKU: SLR-210-0986

Note: 2-3 Week Lead Time

Condition: New

Weight: 0.76 LBS

Shipping: Calculated at checkout

Quantity:

1

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ADD TO PROJECT

- Buy 10 - 49 and get 2% off

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PRODUCT DESCRIPTION

DPW EASY PIVOT FEET - PEF-1.5

DPW, PowerRail P6/P8 Easy Pivot Feet, Clear, with 1.5" screw, Qty. 1, PEF-1.5

The Power Rail top-clamping mounting system is designed with the professional PV solar installer in mind. The top-clamping rails utilize a single tool with a revolutionary RADTM Fastener for faster bolt placement. The unique shape of the RAD provides an anti-rotation feature, locking the bolt in the proper orientation when installed. The high strength rigid rails also include an integral wiring channel for securing cables and providing a professional finish. The Power Rail Mounting System features the industry's broadest selection of mounting supports, designed for secure and water tight attachments to any roof style.

Features

- **High Strength Reliable Design** - Engineered rail profiles for maximum strength-to-weight ratio. Structural Aluminum rigid rail construction. High Strength stainless steel module clamps and hardware.

• **Reduced Installation Time and Costs** - Single Tool Assembly – all 5/16" hardware. RAD Fastener for quick bolt placements anywhere along rail. Under flange clamping options. Integral Wiring Channel for securing cables. Standard lengths up to 27 feet eliminate costly rail splices. Snap-In WEEB Integral module grounding option.

• **Flexible Mounting Options** - Height adjustable "L" mounting feet. Tilt Feet up to 10 degrees. Solid Aluminum Power Post stanchions. Easy Feet attachment anywhere on metal or composite roof decking. PV Flashing mounting supports. Telescoping and One-Piece Tilt Kits up to 65 degrees. Easy Feet Tile Hooks.

General Information	
Manufacturer:	DPW Solar
Product Line:	DPW Accessories
Model ID:	PEF-1.5
Certifications and Safety Ratings:	

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DPW PowerRail PRM-EP7 7" Stand-Off

~~\$32.00~~ \$19.70

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Mechanical Data	
Technology:	Easy Pivot Feet
Module Size:	6.00 x 4.00 x 4.00 Inches
Weight:	0.76 lbs
Color:	Clear


Datasheets	
Document	Type
DPW Solar PEF-1.5 Specs	Specification Guide
DPW Solar Module Type Guide	Guide
Warranty	
DPW Solar PEF-1.5 Warranty	Warranty

Terms & Conditions	
Shipping:	Shipping Policy
Returns:	Returns Policy
Payments:	We accept: Visa, MasterCard, Discover, and American Express. We also accept checks, direct deposit and wire transfers for large orders.

DPW Solar - DPW PowerRail PEF-1.5 1.5" Easy Pivot Feet

Price: 14.7

Condition: new

Contact Us		
<div>Call (800) 215-5350 to Request Quote</div> <div>for wholesale orders and solar power systems</div> <div><div>*First Name</div><div></div><div>*Last Name</div><div></div><div>*Email Address</div><div></div><div><div>*Phone</div><div></div><div>Zip Code</div><div></div></div><div>*How can we help you?</div><div></div><div>Send >></div></div>		 <div>Why Go Solar With Us?</div> <p>Solaris is a leading online solar energy supply store serving American homeowners and businesses. We design and supply quality Solar Power Kits, both preconfigured and custom tailored for your needs. Our wholesale pricing reflects the relationships we carry with the manufacturers we stock, ensuring the best deals for our customers.</p> <p>We carry everything you need for your grid-tied or off-grid system, including plans, permits and diagrams. Our Solar Panels, Inverters, Racking and Mounting are second to none in quality, reliability, efficiency and lifespan. When going solar with us, we help you every step of the way in sourcing the products that matter for your investment.</p> <p>Let us design and supply your system for less using the best products in the solar energy market. We are proud to be a preferred distributor for solar installers and DIY homeowners alike.</p> <p>Shop confidently with us and receive expert technical help from start to finish, and watch your investment produce free renewable energy for years to come!</p>

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