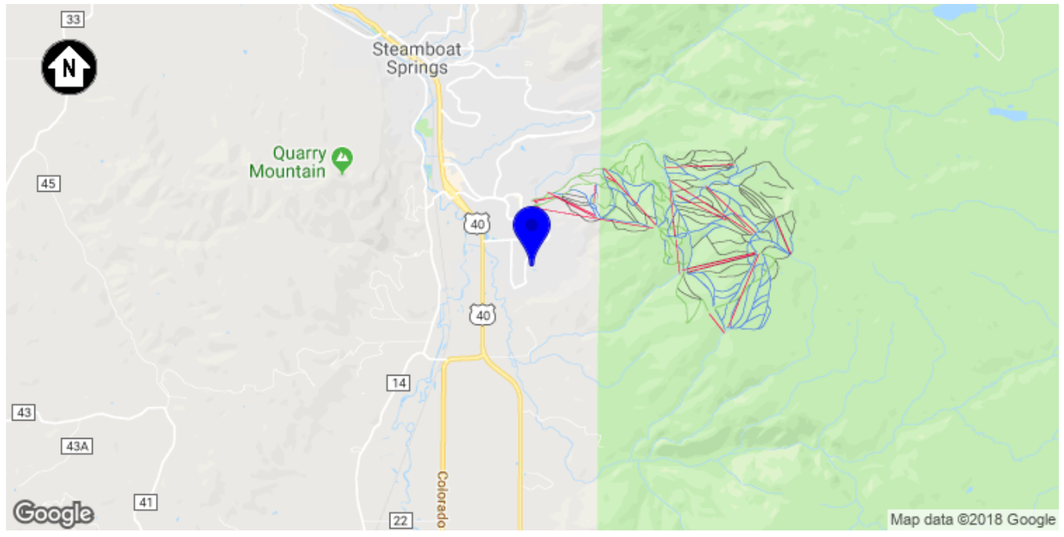
DIRECTORY OF PAGES	
PV-1	PROJECT SUMMARY
PV-2	SITE PLAN
APPENDIX	MODULE DATASHEET
	OPTIMIZER DATASHEET
	INVERTER DATASHEET

PROJECT DETAILS	
PROPERTY OWNER	
PROPERTY ADDRESS	3367 APRES SKI WAY, STEAMBOAT SPRINGS, CO 80487 US
APN	
ZONING	RESIDENTIAL
USE AND OCCUPANCY CLASSIFICATION	ONE- OR TWO-FAMILY DWELLING GROUP (GROUP R3)
AHJ	
UTILITY COMPANY	YAMPA VALLEY ELECTRIC ASSN INC
ELECTRICAL CODE	2017 NEC (NFPA 70)
FIRE CODE	2015 IFC

CONTRACTOR INFORMATION	
COMPANY	SUNWISE SOLAR, LLC
LICENSE NUMBER	010556 (NABCEP PV INSTALLATION PROF.)
ADDRESS	1143 OAK ST, STEAMBOAT SPRINGS, CO 80487
PHONE NUMBER	(970) 819-0840
CONTRACTOR SIGNATURE	

1 PV-1 PLOT
SCALE: NTS



2 PV-1 LOCALE
SCALE: NTS

SCOPE OF WORK

THIS PROJECT INVOLVES THE INSTALLATION OF SOLAR PANELS. THE SOLAR PANELS WILL BE RACKED USING A PREENGINEERED RACKING SYSTEM. THE RACKED 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 PHOTOVOLTAIC SYSTEM WITH NO BATTERY STORAGE
DC RATING OF SYSTEM	6,555W
AC RATING OF SYSTEM	10,000W
AC OUTPUT CURRENT	42.0A
INVERTER(S)	1 X SOLAR EDGE SE10000H-US
MODULE	SOLARIA POWERXT-345R-BD
ARRAY WIRING	(1) STRING OF 9 (1) STRING OF 10

INTERCONNECTION DETAILS	
POINT OF CONNECTION	NEW LOAD SIDE AC CONNECTION PER NEC 705.12(A)
UTILITY SERVICE	120/240V 1Φ

SITE DETAILS	
ASHRAE EXTREME LOW	-25°C (-13°F)
ASHRAE 2% HIGH	30°C (86°F)
CLIMATE DATA SOURCE	HAYDEN/YAMPA (AWOS) (KHDN)
WIND SPEED	
RISK CATEGORY	II
WIND EXPOSURE CATEGORY	
GROUND SNOW LOAD	

P-102515

Sunwise Solar

GRID-TIED SOLAR POWER SYSTEM

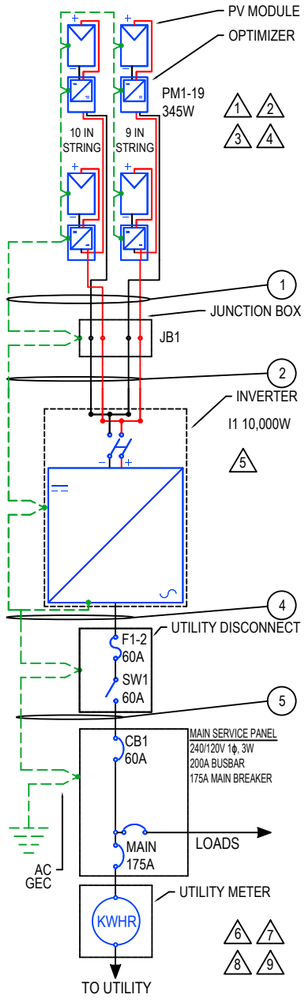
3367 APRES SKI WAY
STEAMBOAT SPRINGS, CO 80487

PROJECT SUMMARY

DOC ID: 102515-128868-1
DATE: 12/11/18
CREATOR: C.M.
REVIEWER:

REVISIONS

PV-1



MODULES

REF.	QTY.	MAKE AND MODEL	PMAX	PTC	ISC	IMP	VOC	VMP	TEMP. COEFF. OF VOC	FUSE RATING
PM1-19	19	SOLARIA POWERXT-345R-BD	345W	319W	9.40A	8.88A	47.1V	38.9V	-0.137V/°C (-0.29%/°C)	15A

INVERTERS

REF.	QTY.	MAKE AND MODEL	AC VOLTAGE	GROUND	MAX OCPD RATING	RATED POWER	MAX OUTPUT CURRENT	MAX INPUT CURRENT	MAX INPUT VOLTAGE	CEC WEIGHTED EFFICIENCY
I1	1	SOLAR EDGE SE10000H-US	240V	NOT SOLIDLY GROUNDED	60A	10,000W	42.0A	27.0A	480V	99.0%

POWER OPTIMIZERS

REF.	QTY.	MODEL	RATED INPUT POWER	MAX OUTPUT CURRENT	MAX INPUT ISC	MAX DC VOLTAGE	WEIGHTED EFFICIENCY
PO1-19	19	SOLAR EDGE P370	370W	15A	11.0A	60V	98.8%

DISCONNECTS

REF.	QTY.	MAKE AND MODEL	RATED CURRENT	MAX RATED VOLTAGE
SW1	1	EATON DG222NRB OR EQUIV.	60A	240VAC

OCPDS

REF.	QTY.	RATED CURRENT	MAX VOLTAGE
F1-2	2	60A	240VAC
CB1	1	60A	240VAC

SYSTEM SUMMARY

	STRING 1	STRING 2
OPTIMIZERS MAX OUTPUT CURRENT	15A	15A
OPTIMIZERS IN SERIES	10	9
NOMINAL STRING VOLTAGE	400V	400V
ARRAY OPERATING CURRENT	8.6A	7.8A
ARRAY STC POWER	6,555W	
ARRAY PTC POWER	6,053W	
MAX AC CURRENT	42A	
MAX AC POWER	10,000W	
DERATED (CEC) AC POWER	5,921W	

NOTES

1. OPTIMIZERS PROVIDE RAPID SHUTDOWN FUNCTIONALITY REQUIRED BY NEC 690.12.
2. THE SPECIFIED OPTIMIZER CAN BE SUBSTITUTED WITH A P400, P405, OR P505. 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.
3. DC PV CONDUCTORS ARE NOT SOLIDLY GROUNDED. NO DC PV CONDUCTOR SHALL BE WHITE- OR GRAY-COLORED
4. MAX DC VOLTAGE OF ARRAY FIXED BY THE INVERTER AT 400V REGARDLESS OF TEMPERATURE. THE MAX DC VOLTAGE OF THE MODULE AT -25°C IS EXPECTED TO BE 53.9V (-25°C - 25°C) X -0.137V/C + 47.1V = 53.9V).
5. INVERTER IS NON-ISOLATED. NO CONDUCTOR IS SOLIDLY GROUNDED AND THEREFORE NO DC GEC IS REQUIRED.
6. (E) 200A MAIN BREAKER DERATED TO (N) 175A
7. POINT-OF-CONNECTION IS ON LOAD SIDE OF SERVICE DISCONNECT, IN COMPLIANCE WITH NEC 705.12(B). OUTPUT IS BACKFED THROUGH BREAKER IN MAIN PANEL.
8. THE PV BREAKER SHALL NOT BE MARKED FOR "LINE" AND "LOAD".
9. THE PV BREAKER SHALL BE LOCATED AT THE OPPOSITE END OF THE BUSBAR FROM THE MAIN BREAKER.

CONDUCTOR AND CONDUIT SCHEDULE W/ELECTRICAL CALCULATIONS

ID	TYPICAL	CONDUCTOR	CONDUIT	CURRENT-CARRYING CONDUCTORS IN CONDUIT	OCPD	EGC	TEMP. CORR. FACTOR	CONDUIT FILL FACTOR	CONT. CURRENT	MAX. CURRENT (125%)	BASE AMP.	DERATED AMP.	TERM. TEMP. RATING	AMP. @ TERM. TEMP. RATING	LENGTH	VOLTAGE DROP
1	1	10 AWG PV WIRE, COPPER	FREE AIR	N/A	N/A	6 AWG BARE, COPPER	0.76 (52°C)	1.0	15A	18.75A	55A	41.8A	75°C	50A	66FT	0.62%
2	1	10 AWG THWN-2, COPPER	0.75" DIA. EMT	4	N/A	10 AWG THWN-2, COPPER	1.0 (30°C)	0.8	15A	18.75A	40A	32A	60°C	30A	19FT	0.18%
3	1	10 AWG PV WIRE, COPPER	FREE AIR	N/A	N/A	6 AWG BARE, COPPER	0.76 (52°C)	1.0	15A	18.75A	55A	41.8A	75°C	50A	59FT	0.55%
4	1	6 AWG THWN-2, COPPER	0.75" DIA. EMT	2	60A	10 AWG THWN-2, COPPER	1.0 (30°C)	1.0	42A	52.5A	75A	75A	60°C	55A	19FT	0.33%
5	1	6 AWG THWN-2, COPPER	0.75" DIA. EMT	2	60A	10 AWG THWN-2, COPPER	1.0 (30°C)	1.0	42A	52.5A	75A	75A	75°C	65A	10FT	0.17%

GENERAL ELECTRICAL NOTES

1. UTILITY HAS 24-HR UNRESTRICTED ACCESS TO ALL PHOTOVOLTAIC SYSTEM COMPONENTS LOCATED AT THE SERVICE ENTRANCE.
2. MODULES CONFORM TO AND ARE LISTED UNDER UL 1703.
3. CONDUCTORS EXPOSED TO SUNLIGHT SHALL BE LISTED AS SUNLIGHT RESISTANT PER NEC ARTICLE 300.6 (C) (1) AND ARTICLE 310.8 (D).
4. CONDUCTORS EXPOSED TO WET LOCATIONS SHALL BE SUITABLE FOR USE IN WET LOCATIONS PER NEC ARTICLE 310.8 (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. ALL GROUNDING SYSTEM COMPONENTS SHALL BE LISTED FOR THEIR PURPOSE
5. 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.
6. AC SYSTEM GROUNDING ELECTRODE CONDUCTOR (GEC) SHALL BE A MINIMUM SIZE #8AWG WHEN INSULATED, #6AWG IF BARE WIRE.
7. 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
8. GROUNDING AND BONDING CONDUCTORS, IF INSULATED, SHALL BE COLOR CODED GREEN, OR MARKED GREEN IF #4AWG OR LARGER

1 PV-3 SINGLE-LINE DIAGRAM
SCALE: NTS

P-102515

Sunwise Solar

GRID-TIED SOLAR POWER SYSTEM

3367 APRES SKI WAY
STEAMBOAT SPRINGS, CO 80487

SINGLE-LINE DIAGRAM

PROJECT ID: 102515
DATE: 12/11/18
CREATED BY: C.M.
CHECKED BY:

REVISIONS

PV-3

1 PV-2 SITE PLAN (AERIAL VIEW)
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(G).

P-102515

Sunwise Solar

GRID-TIED SOLAR POWER SYSTEM

3367 APRES SKI WAY
STEAMBOAT SPRINGS, CO 80487

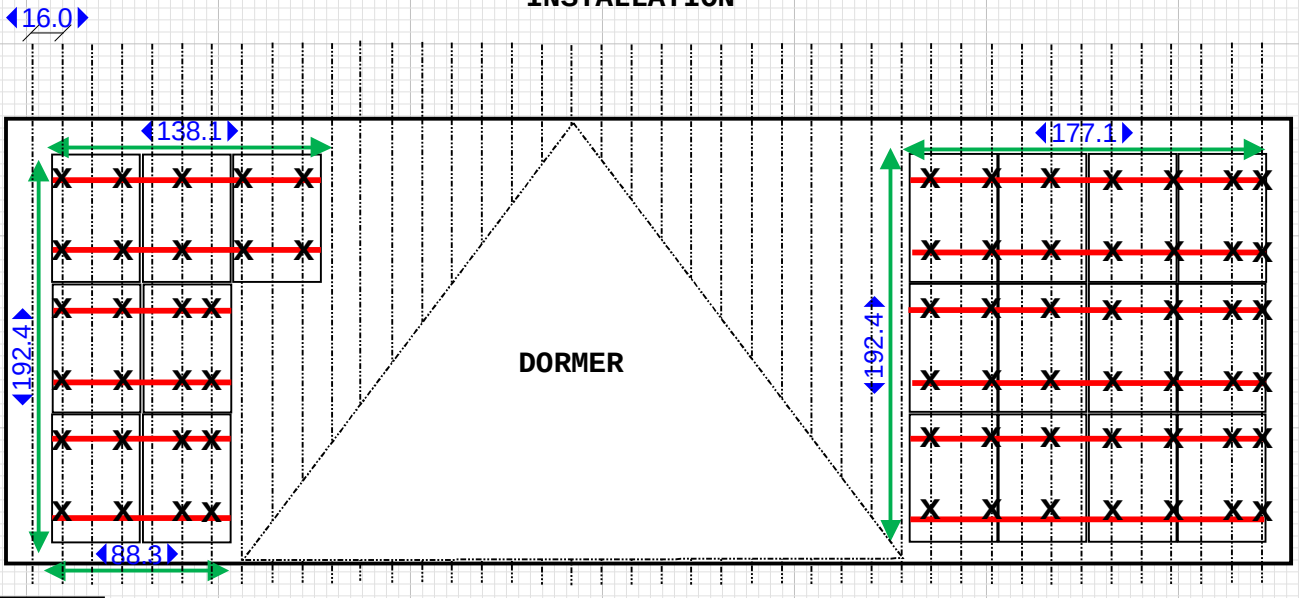
SITE PLAN

DOC ID: 102515-128868-1
DATE: 12/11/18
CREATOR: C.M.
REVIEWER:

REVISIONS

PV-2

ROOF ATTACHMENT PLAN - 19 MODULE SOLAR-ELECTRIC INSTALLATION



LEGEND

63.8 = SOLARIA POWERXT 345-WATT SOLAR MODULE

43.9

= SNAPNRACK ALUMINUM RAILS

X = 5/16" SS LAG BOLT

SITE: 3367 Apres Ski Way, Steamboat Springs, CO 80487	DRAWING: 801551	PROJECT: 000097	DRAWN: Colin McCaulley	NOTES: South Facing Roofspace, 38 Degree Slope	Sunwise Solar, LLC Steamboat Springs, CO - 80487 (970)-819-0840 Colin@Sunwise-Solar.com
TITLE: 19 Module Solar-Electric Array 6.55 kW	SCALE: 1/4" = 1'-0"	DATE: 11/5/2018	REV: B		

December 11, 2018

Michael Ehrlich Structural Engineering Inc
PO Box 772393
Steamboat Springs, CO 80477

To: Sunwise Solar

Re: Solar Panel Addition
3367 Apres Ski Way
Steamboat Springs, CO

Per your request we have evaluated the structural adequacy of the existing roof for the proposed solar panel installation and find it acceptable.

There will be nineteen Solaria 345 Modules on the southernmost facing 38 degree sloped roof, installed with the Snapnrack TDS standard rail system. It is our understanding that you will install three rows of module racks on either side of the dormer as shown in the attached diagram.

Each module group is 63.8” long x 43.9” wide. There will be two rails space about 40" inches apart running horizontal on the roof to attach the modules to. The rails attach to the flash L-feet. The modules attach to the rails with the mid clamps. The Snap n Rack's corrugated straddle block will be used to connect the L-Feet to the roof structure over the peaks, or hexagonal blocks when the rafter to lag into is over a flat valley. These will be sealed using a EPDM ring around the base/top depending on clip used, so will be water-tight to the composite shingle roof.

It is our understanding that the existing roof trusses are 2” x 12” spaced at 16” oc. There will be 68 attachments as shown. The standard 5/16” diameter x 4” lag bolts will be used. The rack is rated for spans up to 40". The lag bolts should be at every other rafter so that the longest spacing between supports is 32". All cantilevers should be less than 16.5".

Plans for the existing house could not be located. The existing trusses should be field verified for load stamp.

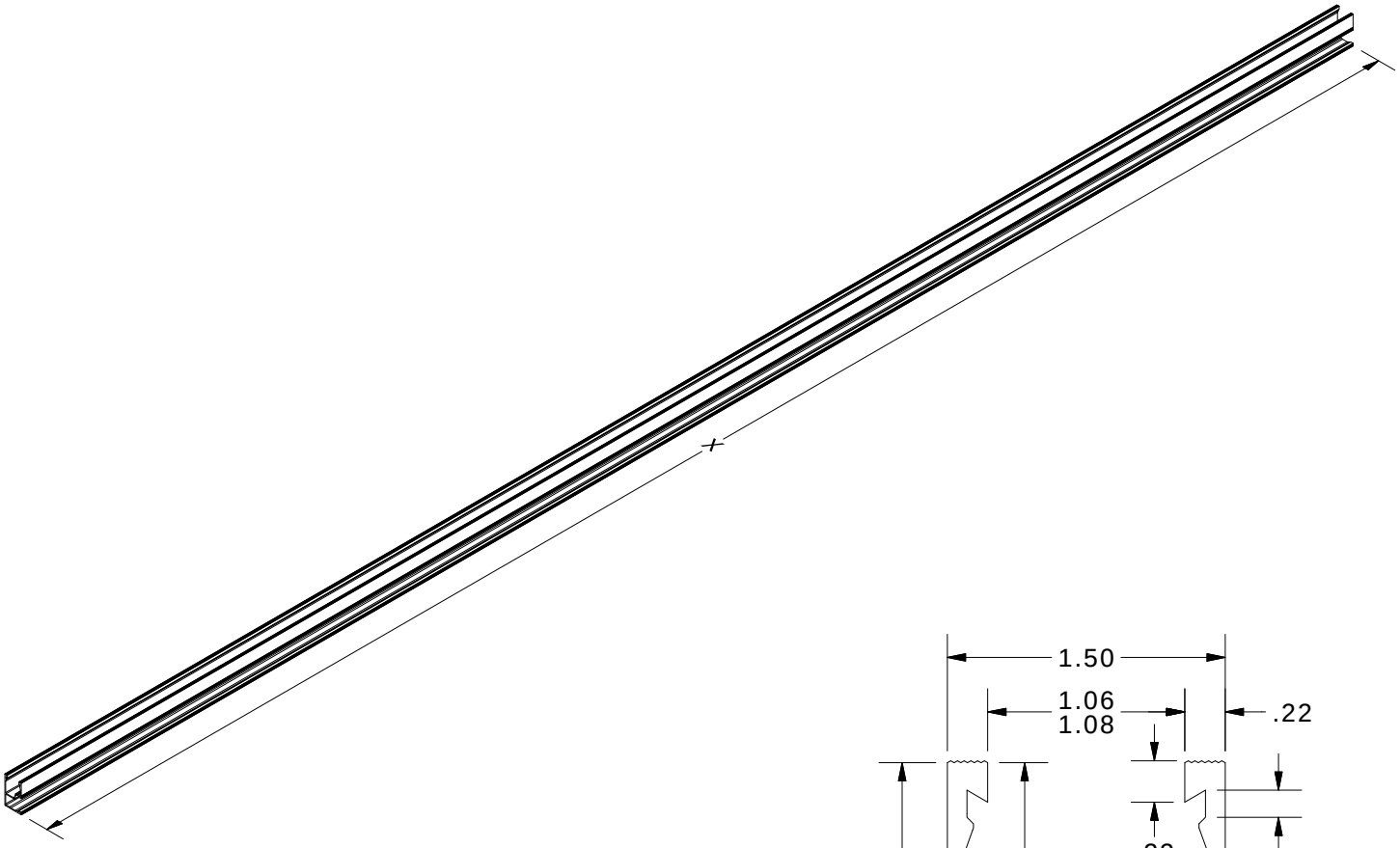
Please contact me if you have any questions.

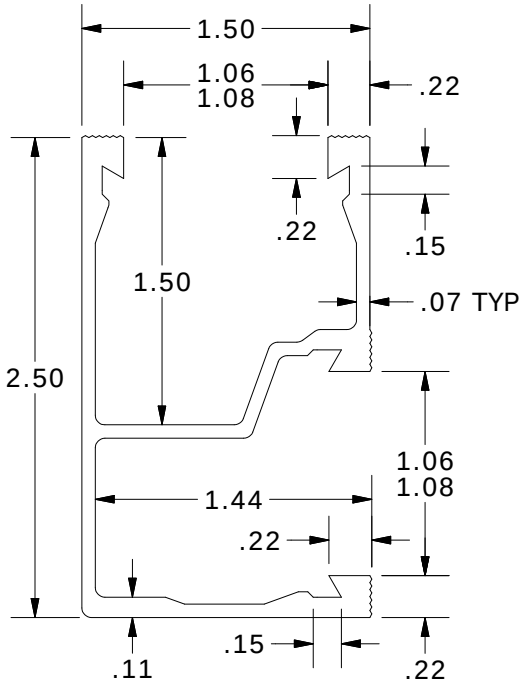
Michael Ehrlich

Michael Ehrlich, president

DESCRIPTION:	DRAWN BY:	SnapNrack™ Solar Mounting Solutions
SNAPNRACK, STANDARD RAIL	D. Ryan	
PART NUMBER(S):	REVISION:	
232-01067, 232-01068, 232-01069, 232-01070, 232-02112, 232-02113	A	

595 MARKET STREET, 29TH FLOOR • SAN FRANCISCO, CA 94105 USA
PHONE (415) 580-6900 • FAX (415) 580-6902



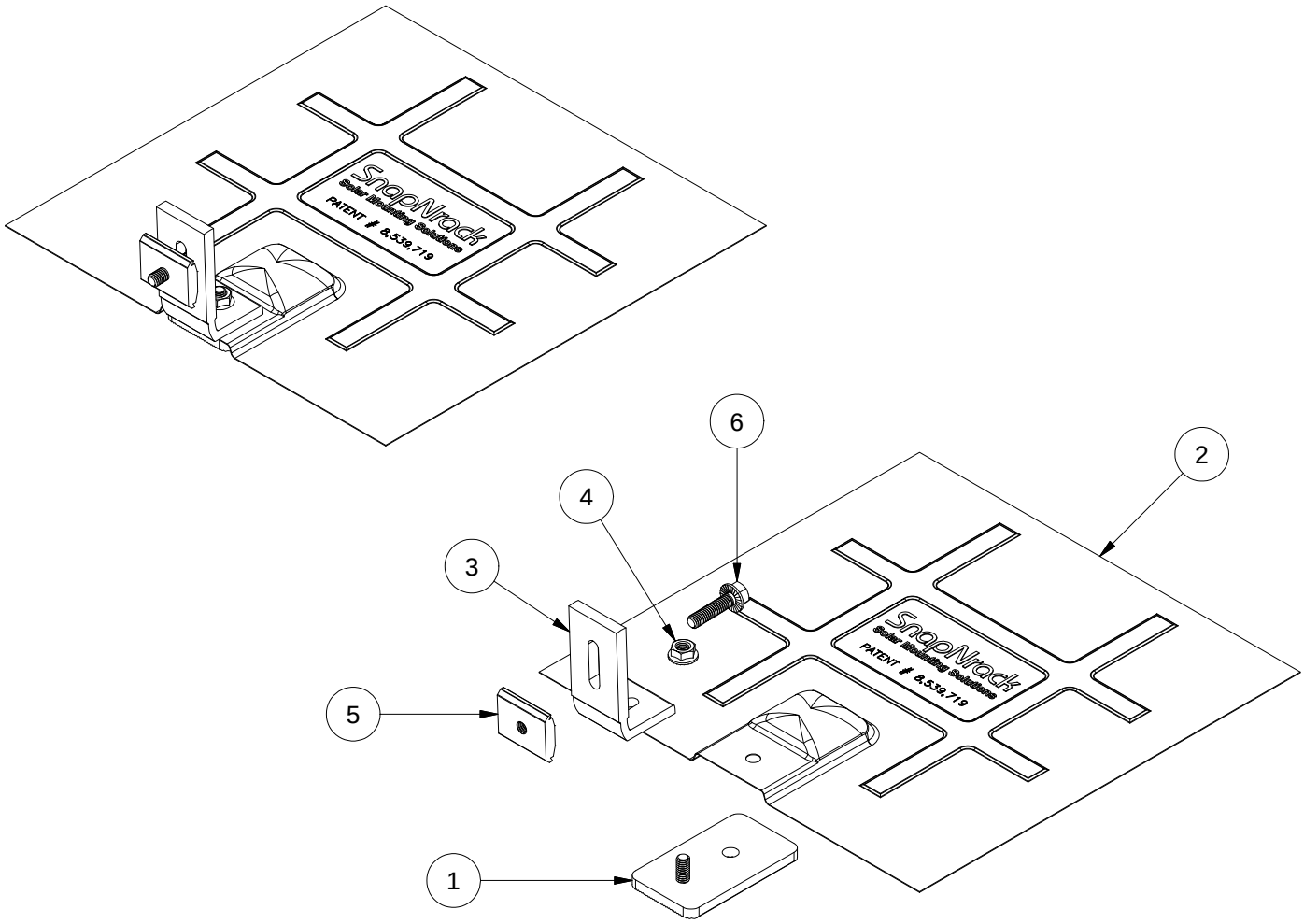


STANDARD RAIL PROPERTIES		
SKU	RAIL LENGTH (X)	FINISH
232-01067	122"	BLACK
232-01068	122"	CLEAR
232-01069	162"	BLACK
232-01070	162"	CLEAR
232-02112	122"	MILL
232-02113	162"	MILL

ALL DIMENSIONS IN INCHES

MATERIALS:	6000 SERIES ALUMINUM	OPTIONS:
DESIGN LOAD (LBS):	N/A	CLEAR / BLACK ANODIZED
ULTIMATE LOAD (LBS):	N/A	MILL FINISH
TORQUE SPECIFICATION:	N/A LB-FT	122" / 162" LENGTHS
CERTIFICATION:	UL 2703, FILE E359313	BOXES OF 2 / 6
WEIGHT (LBS):	7.65 - 10.16	BUNDLES OF 112

DESCRIPTION:	DRAWN BY:	SnapNrack™ Solar Mounting Solutions
SNAPNRACK, FLASHED L FOOT	M.Watkins	
PART NUMBER(S):	REVISION:	595 MARKET STREET, 29TH FLOOR • SAN FRANCISCO, CA 94105 USA PHONE (415) 580-6900 • FAX (415) 580-6902
242-92047, 242-92048, 242-92050, 242-92051	A	THE INFORMATION IN THIS DRAWING IS CONFIDENTIAL AND PROPRIETARY. ANY REPRODUCTION, DISCLOSURE, OR USE THEREOF IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF SUNRUN SOUTH LLC.



PARTS LIST		
ITEM	QTY	DESCRIPTION
1	1	SNAPNRACK, L FOOT BASE, MILL
2	1	SNAPNRACK, L FOOT FLASHING, 12IN X 12IN, BLACK GALV
3	1	SNAPNRACK L FOOT, COMPOSITION 92DEG, CLEAR / BLACK
4	1	NUT, FLANGE, SERRATED, 5/16IN-18, SS
5	1	SNAPNRACK CHANNEL NUT 5/16IN-18
6	1	BOLT, FLANGED HEX, 5/16IN-18 X 1-1/4IN, SS

MATERIALS:	6000 SERIES ALUMINUM, STAINLESS STEEL	OPTIONS:
DESIGN LOAD (LBS):	309 UP, 1469 DOWN, 251 SIDE	CLEAR / BLACK ANODIZED
ULTIMATE LOAD (LBS):	928 UP, 4406 DOWN, 754 SIDE	GALV STEEL / ALUM FLASHING
TORQUE SPECIFICATION:	10+ LB-FT	
CERTIFICATION:	UL 2703, FILE E359313	
WEIGHT (LBS):	0.90 - 1.25	

DESCRIPTION:	DRAWN BY:	SnapNrack™ Solar Mounting Solutions
SNAPNRACK, FLASHED L FOOT	M.Watkins	
PART NUMBER(S):	REVISION:	595 MARKET STREET, 29TH FLOOR • SAN FRANCISCO, CA 94105 USA PHONE (415) 580-6900 • FAX (415) 580-6902
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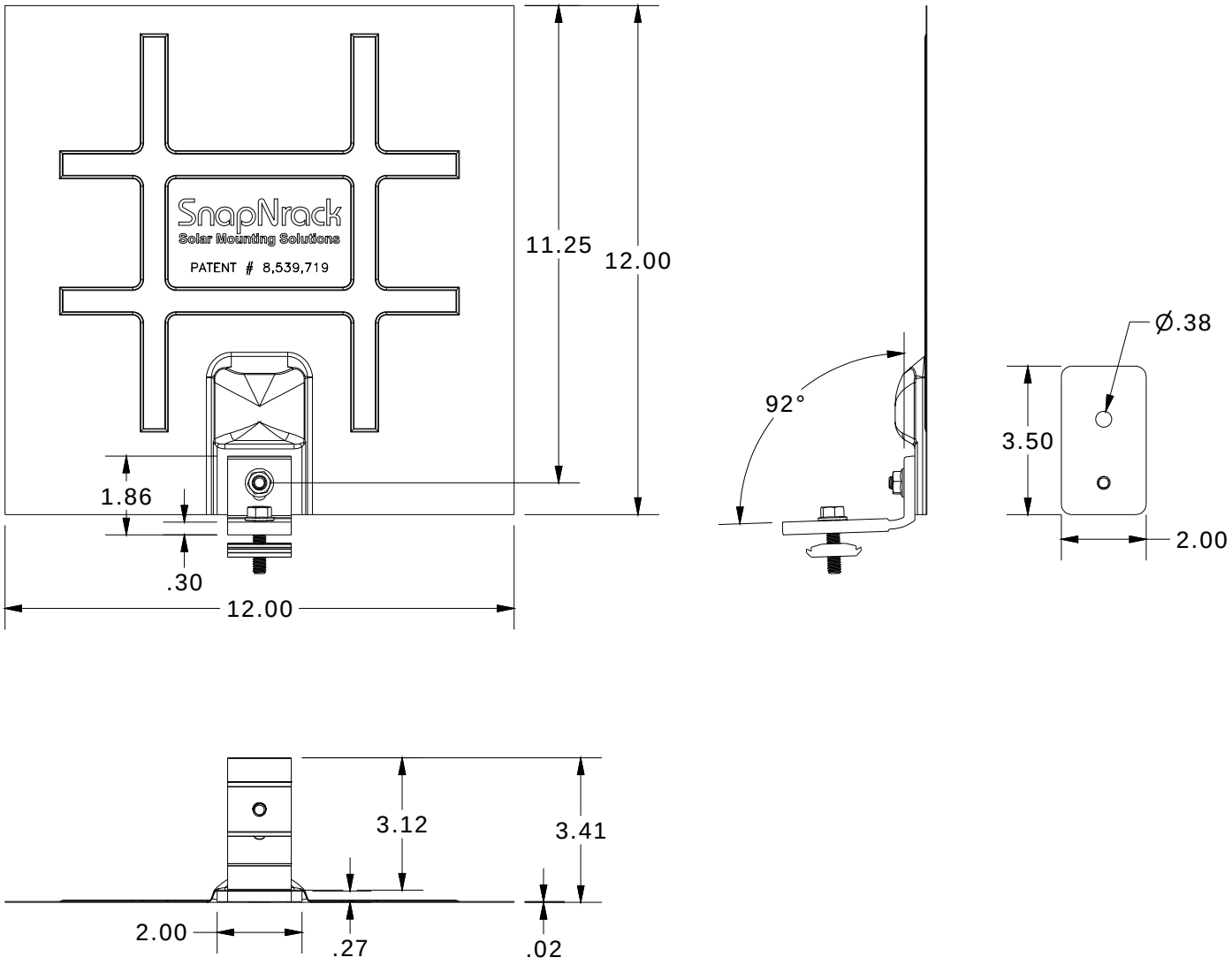
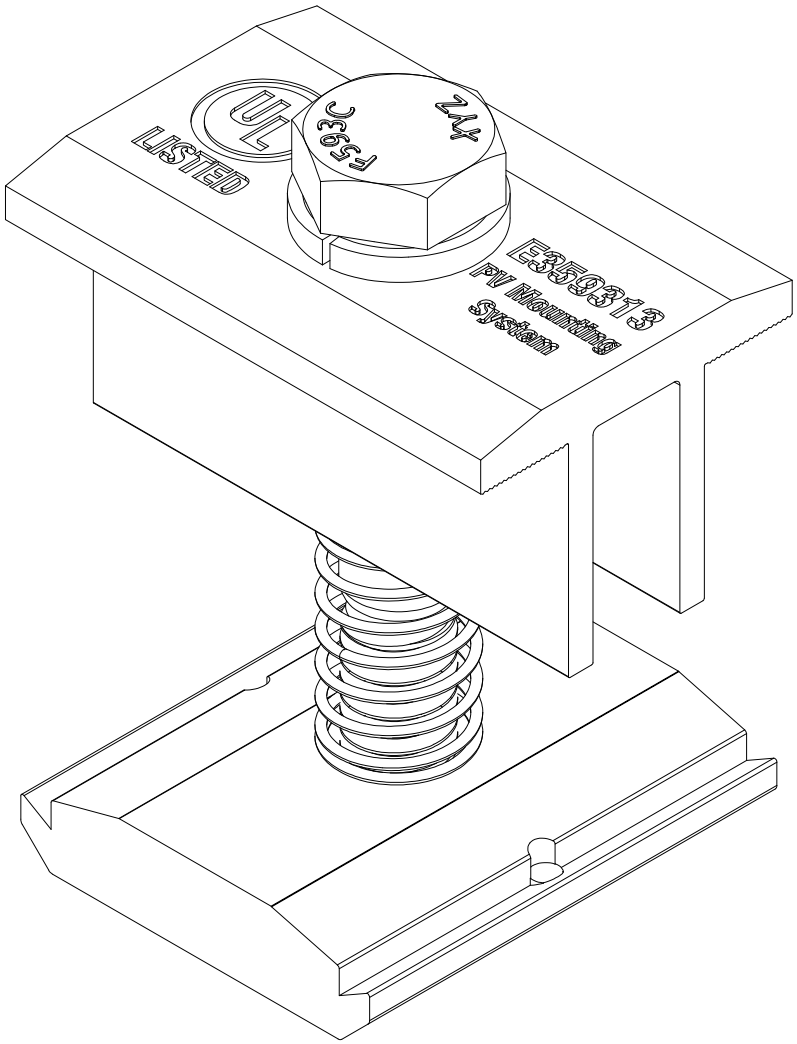
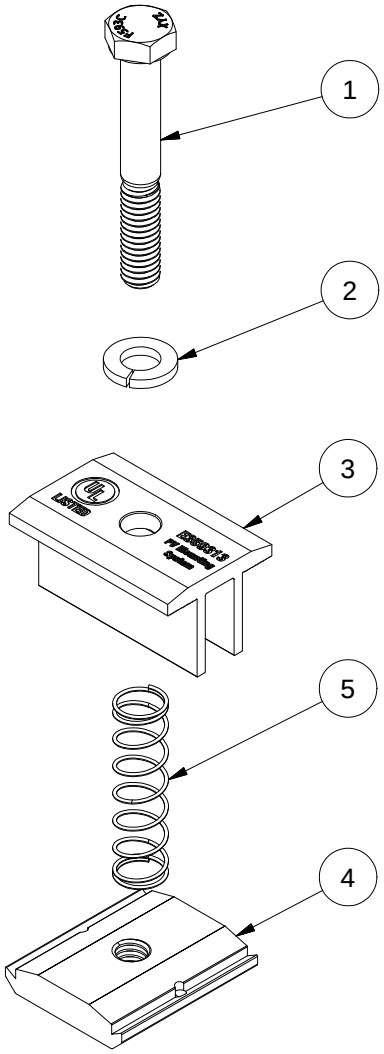


FLASHED L FOOT PROPERTIES		
SKU	FLASHING MATERIAL	L FOOT FINISH
242-92047	SILVER ALUMINUM	CLEAR
242-92048	BLACK ALUMINUM	BLACK
242-92050	BLACK GALV STEEL	CLEAR
242-92051	BLACK GALV STEEL	BLACK

ALL DIMENSIONS IN INCHES

DESCRIPTION:	DRAWN BY:	SnapNrack™ Solar Mounting Solutions
SNAPNRACK, BONDING MID CLAMP	D.Ryan	
PART NUMBER(S):	REVISION:	595 MARKET STREET, 29TH FLOOR • SAN FRANCISCO, CA 94105 USA PHONE (415) 580-6900 • FAX (415) 580-6902
242-02050, 242-02051, 242-02052, 242-02053, 242-02054, 242-02055, 242-02056, 242-02057	A	THE INFORMATION IN THIS DRAWING IS CONFIDENTIAL AND PROPRIETARY. ANY REPRODUCTION, DISCLOSURE, OR USE THEREOF IS PROHIBITED WITHOUT THE WRITTEN CONSENT OF SUNRUN SOUTH LLC.





PARTS LIST		
ITEM	QTY	DESCRIPTION
1	1	5/16IN-18 SS HCS BOLT, LENGTH VARIES, CLEAR / BLACK
2	1	5/16IN SS SPLIT LOCK WASHER, CLEAR / BLACK
3	1	SNAPNRACK, BONDING MID CLAMP, CLEAR / BLACK
4	1	SNAPNRACK, BONDING CHANNEL NUT
5	1	SNAPNRACK, MID CLAMP SPRING, SS

MATERIALS:	6000 SERIES ALUMINUM, STAINLESS STEEL	OPTIONS:
DESIGN LOAD (LBS):	800	CLEAR / BLACK ANODIZED
ULTIMATE LOAD (LBS):	2400	
TORQUE SPECIFICATION:	10+ LB-FT	
CERTIFICATION:	UL 2703, FILE E359313	
WEIGHT (LBS):	0.16 - 0.18	

DESCRIPTION:

SNAPNRACK, BONDING MID CLAMP

DRAWN BY:

D.Ryan

REVISION:

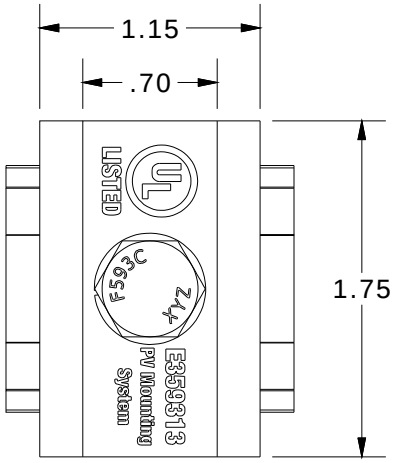
A

PART NUMBER(S):

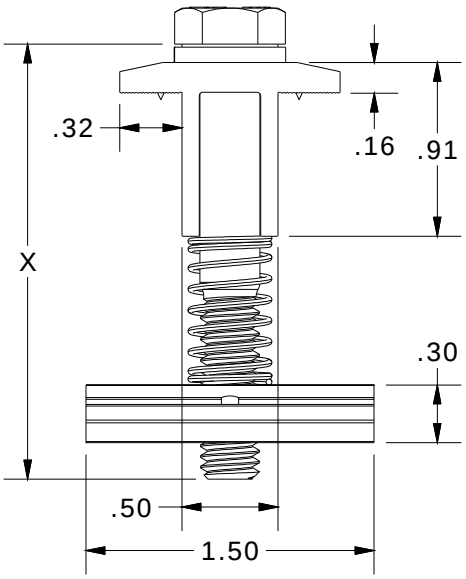
242-02050, 242-02051, 242-02052, 242-02053,
242-02054, 242-02055, 242-02056, 242-02057

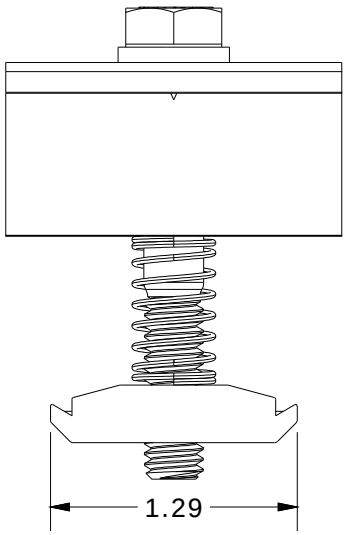
SnapNrack™
Solar Mounting Solutions

595 MARKET STREET, 29TH FLOOR • SAN FRANCISCO, CA 94105 USA
PHONE (415) 580-6900 • FAX (415) 580-6902



MID CLAMP PROPERTIES		
SKU	BOLT LENGTH (X)	FINISH
242-02050	2.25"	CLEAR
242-02051	2.50"	CLEAR
242-02052	2.75"	CLEAR
242-02053	2.25"	BLACK
242-02054	2.50"	BLACK
242-02055	2.75"	BLACK
242-02056	3.00"	CLEAR
242-02057	3.00"	BLACK





ALL DIMENSIONS IN INCHES

SOLARIA

Solaria PowerXT® | Residential

Solaria PowerXT®-350R-PD | Solaria PowerXT®-345R-BD

Achieving up to 19.4% efficiency, Solaria PowerXT solar modules are one of the highest power modules in the residential solar market. Compared to conventional modules, Solaria PowerXT modules have fewer gaps between the solar cells; this leads to higher power and superior aesthetics. Solaria PowerXT residential modules are manufactured with black backsheet and frames, giving them a striking appearance.

Developed in California, Solaria's patented cell cutting and module assembly takes processed solar wafers and turns them into PowerXT solar modules. The process starts by creating a highly reliable PowerXT cell where busbars and ribbon interconnections are eliminated. Solaria then packages the cells into the PowerXT solar module, reducing inactive space between the cells. All of the above leads to an exceptionally efficient solar module produced in a cost effective manner.

Higher Efficiency, Higher Power

Solaria PowerXT modules achieve up to 19.4% efficiency; conventional modules achieve 15% – 17% efficiency. Solaria PowerXT modules are one of the highest power modules available.

Lower System Costs

Solaria PowerXT modules produce more power per square meter area. This reduces installation costs due to fewer balance of system components.

Improved Shading Tolerance

Sub-strings are interconnected in parallel, within each of the four module quadrants, which dramatically lowers the shading losses and boosts energy yield.

Improved Aesthetics

Compared to conventional modules, Solaria PowerXT modules have a more uniform appearance and superior aesthetics.

Durability and Reliability

Solder-less cell interconnections are highly reliable and designed to far exceed the industry leading 25 year warranty.

About Solaria

Established in 2000, The Solaria Corporation has created one of the industry's most respected IP portfolios, with over 100 patents encompassing materials, processes, applications, products, manufacturing automation and equipment. Headquartered in Fremont, California, Solaria has developed a technology platform that unlocks the potential of solar energy allowing it to be ubiquitous and universally accessed.

TOP PERFORMER 2017 DNV·GL PV MODULE RELIABILITY SCORECARD

TÜVRheinland® Precisely Right.

SOLARIA

Solaria PowerXT®-350R-PD
Solaria PowerXT®-345R-BD

Performance at STC (1000W/m², 25° C, AM 1.5)

Solaria PowerXT-		340R-BD	345R-BD	345R-PD	350R-PD
Max Power (P_{max})	[W]	340	345	345	350
Efficiency	[%]	18.8	19.1	19.1	19.4
Open Circuit Voltage (V_{oc})	[V]	46.9	47.1	46.9	47.1
Short Circuit Current (I_{sc})	[A]	9.36	9.40	9.46	9.49
Max Power Voltage (V_{mp})	[V]	38.6	38.9	38.5	38.8
Max Power Current (I_{mp})	[A]	8.79	8.88	8.93	9.02
Power Tolerance	[%]	-0/+3	-0/+3	-0/+3	-0/+3

Performance at NOCT (800W/m², 20°C Amb, Wind 1 m/s, AM 1.5)

Max Power (Pmax)	[W]	252	255	255	259
Open Circuit Voltage (V_{oc})	[V]	44.1	44.3	44.1	44.3
Short Circuit Current (I_{sc})	[A]	7.58	7.61	7.66	7.69
Max Power Voltage (V_{mp})	[V]	35.5	35.8	35.4	35.7
Max Power Current (I_{mp})	[A]	7.03	7.10	7.15	7.22

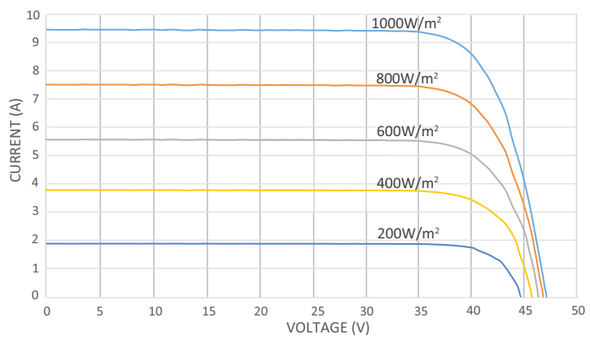
Temperature Characteristics

NOCT	[°C]	45 +/-2
Temp. Coeff. of P_{max}	[% / °C]	-0.39
Temp. Coeff. of V_{oc}	[% / °C]	-0.29
Temp. Coeff. of Isc	[% / °C]	0.04

Design Parameters

Operating temperature	[°C]	-40 to +85
Max System Voltage	[V]	1000
Max Fuse Rating	[A]	15
Bypass Diodes	[#]	4

IV Curves (350W Module)



Authorized Dealer

Mechanical Characteristics

Cell Type	Monocrystalline Silicon
Dimensions (L x W x H)	1621mm x 1116mm x 40mm
Weight	21 kg / 46 lbs
Glass Type / Thickness	AR Coated, Tempered / 3.2mm
Frame Type	Anodized Aluminum
Cable Type / Length	12 AWG PV Wire (UL) / 1000mm
Connector Type	Amphenol H4 (MC4 compatible)
Junction Box	IP67 / 4 diodes
Front Load (UL 1703)	5400 Pa / 113 psf
Rear Load (UL 1703)	3600 Pa / 75 psf

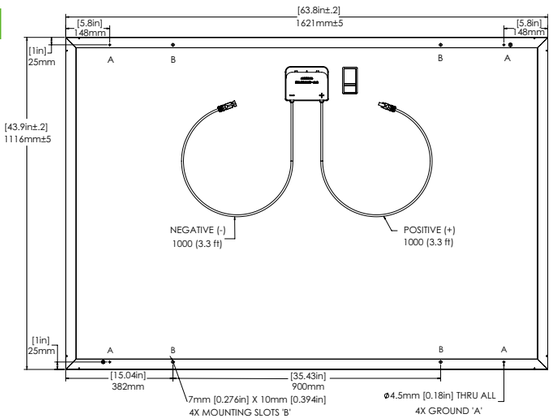
Certifications / Warranty

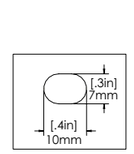
Certifications	UL 1703/IEC 61215/IEC 61730/CEC
Fire Type (UL 1703)	1
Power & Product Warranty	25 years*

* Warranty details at www.solaria.com

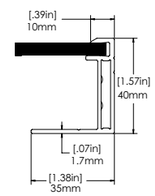
Packaging

Stacking Method	Horizontal / Palletized
Pcs / Pallet	25
Pallet Dims (L x W x H)	1685 x 1150 x 1230 mm
Pallet Weight	590 kg / 1300 lbs
Pallets / 40-ft Container	28
Pcs / 40-ft Container	700





MOUNTING SLOT

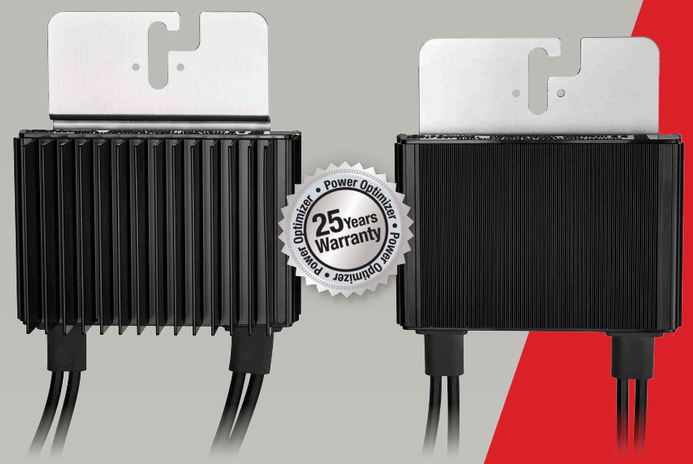


SolarEdge Power Optimizer

Module Add-On For North America

P320 / 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
- Compliant with arc fault protection and rapid shutdown NEC requirements (when installed as part of the SolarEdge system)
- Module-level voltage shutdown for installer and firefighter safety

SolarEdge Power Optimizer

Module Add-On for North America

P320 / P370 / P400 / P405 / P505

OPTIMIZER MODEL (typical module compatibility)	P320 (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	370	400	405	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48	60	80	125	83	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 SOLAREDGE INVERTER)						
Maximum Output Current	15					Adc
Maximum Output Voltage	60			85		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREDGE INVERTER OR SOLAREDGE 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[2]					
Output Wire Type / Connector	Double Insulated; MC4					
Output Wire Length	0.95 / 3.0	1.2 / 3.9				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] For other connector types please contact SolarEdge

PV SYSTEM DESIGN USING A SOLAREDGE INVERTER[3][4]		SINGLE PHASE HD-WAVE	SINGLE PHASE	THREE PHASE 208V	THREE PHASE 480V	
Minimum String Length (Power Optimizers)	P320, P370, P400	8		10	18	
	P405 / P505	6		8	14	
Maximum String Length (Power Optimizers)		25		25	50[5]	
Maximum Power per String		5700 (6000 with SE7600H-US, SE10000H-US)	5250	6000	12750	W
Parallel Strings of Different Lengths or Orientations		Yes				

[3] For detailed string sizing information refer to: http://www.solaredge.com/sites/default/files/string_sizing_na.pdf.

[4] It is not allowed to mix P405/P505 with P320/P370/P400/P600/P700/P800 in one string.

[5] A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement

SolarEdge Single Phase Inverters

for North America

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

INVERTERS

Optimized installation with HD-Wave technology

- Specifically designed to work with power optimizers
- Record-breaking efficiency
- 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
- Extremely small
- High reliability without any electrolytic capacitors
- Built-in module-level monitoring
- Outdoor and indoor installation
- Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)
- Simple configuration and commissioning with smartphone app and built in Wi-Fi (SE10000H-US, SE11400H-US)

HD wave

USA-CANADA-GERMANY-UK-ITALY-THE NETHERLANDS-JAPAN-CHINA-AUSTRALIA-ISRAEL-FRANCE-BELGIUM-TURKEY-INDIA-BULGARIA-ROMANIA-HUNGARY-SWEDEN-SOUTH AFRICA-POLAND-CZECH REPUBLIC

www.solaredge.us

Single Phase Inverters for North America

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

	SE3000H-US	SE3800H-US	SE5000H-US	SE6000H-US	SE7600H-US	SE10000H-US	SE11400H-US	
OUTPUT								
Rated AC Power Output	3000	3800 @240V 3300 @208V	5000	6000	7600	10000	11400	VA
Max. AC Power Output	3000	3800 @240V 3300 @208V	5000	6000	7600	10000	11400	VA
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	✓	-	-	-	-	Vac
AC Output Voltage Min.-Nom.-Max. (211 - 240 - 264)	✓	✓	✓	✓	✓	✓	✓	Vac
AC Frequency (Nominal)	59.3 - 60 - 60.5[1]							Hz
Maximum Continuous Output Current 208V	-	16	24	-	-	-	-	A
Maximum Continuous Output Current 240V	12.5	16	21	25	32	42	47.5	A
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							
INPUT								
Maximum DC Power	4650	5900	7750	9300	11800	15500	17670	W
Transformer-less, Ungrounded	Yes							
Maximum Input Voltage	480							Vdc
Nominal DC Input Voltage	380					400		Vdc
Maximum Input Current 208V	-	9	13.5	-	-	-	-	Adc
Maximum Input Current 240V	8.5	10.5	13.5	16.5	20	27	30.5	Adc
Max. Input Short Circuit Current	45							Adc
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600kΩ Sensitivity							
Maximum Inverter Efficiency	99	99.2						%
CEC Weighted Efficiency	99							%
Nighttime Power Consumption	< 2.5							W
ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)							
Revenue Grade Data, ANSI C12.20	Optional[2]							
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	3/4" minimum / 20-4 AWG							
DC Input Conduit Size / # of Strings / AWG Range	3/4" minimum / 1-2 strings / 14-6 AWG					3/4" minimum / 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 7.7 / 540 x 370 x 195	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	40.1 / 18.2	lb / kg
Noise	< 25					<50		dBA
Cooling	Natural Convection				Natural convection and internal fan (user replaceable)			
Operating Temperature Range	-13 to +140 / -25 to +60[4] (-40˚F / -40˚C option)[5]							˚F / ˚C
Protection Rating	NEMA 3R (Inverter with Safety Switch)							

[1] For other regional settings please contact SolarEdge support
[2] Revenue grade inverter P/N: SExxxxH-US000NNC2
[4] For power de-rating information refer to: https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf
[5] -40 version P/N: SExxxxH-US000NNU4

RoHS