

SOLAR'S MOST TRUSTED



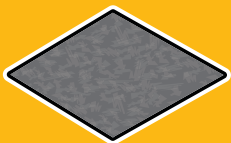
REC TWINPEAK 2 SERIES

**PREMIUM SOLAR PANELS
100% MADE IN SINGAPORE**

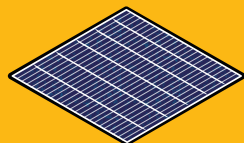
REC TwinPeak 2 Series solar panels feature an innovative design with high panel efficiency and power output, enabling customers to get the most out of the space used for the installation.

Combined with industry-leading product quality and the reliability of a strong and established European brand, REC TwinPeak 2 panels are ideal for residential and commercial rooftops worldwide.

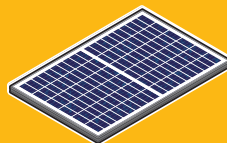
INTEGRATED MANUFACTURING IN SINGAPORE



WAFERS



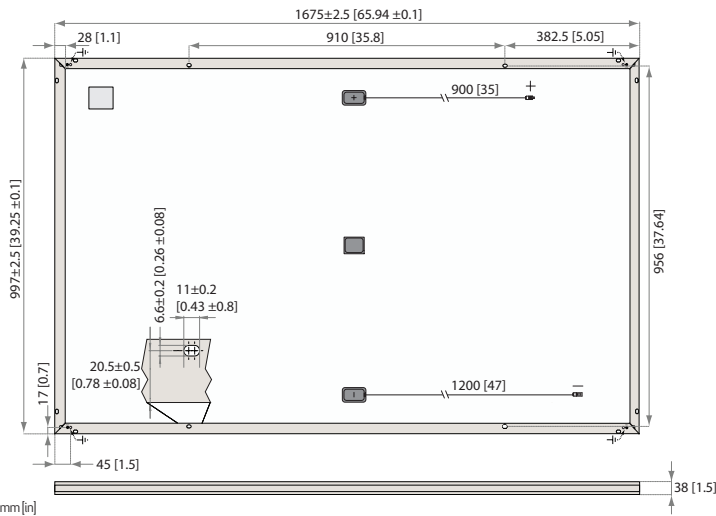
CELLS



MODULES



REC TWINPEAK 2 SERIES



Measurements in mm [in]

ELECTRICAL DATA @ STC

Product Code*: RECxxxTP2

	275	280	285	290	295
Nominal Power - P_{MPP} (Wp)	275	280	285	290	295
Watt Class Sorting - (W)	0/+5	0/+5	0/+5	0/+5	0/+5
Nominal Power Voltage - V_{MPP} (V)	31.5	31.7	31.9	32.1	32.3
Nominal Power Current - I_{MPP} (A)	8.74	8.84	8.95	9.05	9.14
Open Circuit Voltage - V_{OC} (V)	38.2	38.4	38.6	38.8	39.0
Short Circuit Current - I_{SC} (A)	9.52	9.61	9.66	9.71	9.76
Panel Efficiency (%)	16.5	16.8	17.1	17.4	17.7

Values at standard test conditions STC (airmass AM1.5, irradiance 1000 W/m², cell temperature 25°C).

At low irradiance of 200 W/m² (AM1.5 and cell temperature 25°C) at least 95% of the STC module efficiency will be achieved.

*Where xxx indicates the nominal power class (P_{MPP}) at STC above, and can be followed by the suffix BLK for black framed modules.

ELECTRICAL DATA @ NOCT

Product Code*: RECxxxTP2

	206	210	214	218	223
Nominal Power - P_{MPP} (Wp)	206	210	214	218	223
Nominal Power Voltage - V_{MPP} (V)	29.2	29.4	29.6	29.8	30.0
Nominal Power Current - I_{MPP} (A)	7.07	7.15	7.24	7.32	7.43
Open Circuit Voltage - V_{OC} (V)	35.4	35.6	35.8	36.0	36.2
Short Circuit Current - I_{SC} (A)	7.52	7.59	7.68	7.75	7.85

Nominal operating cell temperature NOCT (800 W/m², AM1.5, windspeed 1 m/s, ambient temperature 20°C).

*Where xxx indicates the nominal power class (P_{MPP}) at STC above, and can be followed by the suffix BLK for black framed modules.

CERTIFICATIONS



UL 1703, Fire classification Type 2, IEC 61215, IEC 61730, IEC 61701 (Salt Mist - severity level 6), IEC 62804 (PID Free), IEC 62716 (Ammonia Resistance), ISO 11925-2 (Ignitability Class 1), UNI 8457/9174 (Class A), ISO 9001:2015, ISO 14001, OHSAS 18001

WARRANTY

10 year product warranty

25 year linear power output warranty

(max. degradation in performance of 0.7% p.a. from 97% after the first year)

See warranty conditions for further details.

17.7% EFFICIENCY

10 YEAR PRODUCT WARRANTY

25 YEAR LINEAR POWER OUTPUT WARRANTY



US IMPORT DUTY FREE

TEMPERATURE RATINGS

Nominal operating cell temperature (NOCT) 44.6°C (±2°C)

Temperature coefficient of P_{MPP} -0.36 %/°C

Temperature coefficient of V_{OC} -0.30 %/°C

Temperature coefficient of I_{SC} 0.066 %/°C

GENERAL DATA

Cell type: 6 strings of 20 REC HC multicrystalline PERC

Glass: 0.13" (3.2 mm) solar glass with anti-reflective surface treatment

Back sheet: Highly resistant polyester polyolefin construction

Frame: Anodized aluminum (Available in silver or black)

Junction box: IP67 rated, 3-part with 3 bypass diodes 12 AWG (4 mm²) PV wire, 35" + 47" (0.9 m + 1.2 m)

Connectors: Stäubli MC4 PV-KBT4/PV-KST4, 12 AWG (4 mm²)

Origins: Silicon: Made in USA & Norway Wafer/Cell/Module: Made in Singapore

MAXIMUM RATINGS

Operational temperature: -40... +185°F (-40... +85°C)

Maximum system voltage: 1000 V

Design Loads: (+) 75.2 lbs/ft² (3600 Pa)
(-) 33.4 lbs/ft² (1600 Pa)
Refer to installation manual

Max series fuse rating: 20 A

Max reverse current: 20 A

MECHANICAL DATA

Dimensions: 65.9 x 39.25 x 1.5 (1675 x 997 x 38 mm)

Area: 17.98 ft² (1.67 m²)

Weight: 40.8 lbs (18.5 kg)

Note! Specifications subject to change without notice.



www.recgroup.com

SERIES 100 UL ROOF MOUNT SYSTEM

SnapNrack Solar Mounting Solutions

The SnapNrack line of solar mounting solutions is designed to reduce total installation costs. The system's technical innovations have been proven to drive down costs and improve installation quality on more than 350 MW of solar installations.

Pitched Roof Arrays Simplified

The SnapNrack Series 100 UL Roof Mount System is an efficient, visually appealing, photovoltaic (PV) module installation system. Series 100 UL is Listed to the UL Standard 2703 for Bonding, meaning that all system components have been Certified by UL for electrical continuity, eliminating the need for additional grounding hardware. The System's components provide an adequate bonding path which has eliminated the need for grounding lugs and washers at each module, and bonding jumpers between splices. The UL 2703 Listing ensures that SnapNrack partners can provide the best in class installations in quality, safety, and efficiency.

- All bonding hardware is fully integrated into the components
- No grounding lugs required for modules
- Rail splices bond rails together, no rail jumpers required
- Proprietary SnapNrack grounding lug snaps in the rail channel, no drilling of rail or reaching for other tools required (One Lug per individual row of modules)
- Class A Fire Rating Type 1 and 2 modules

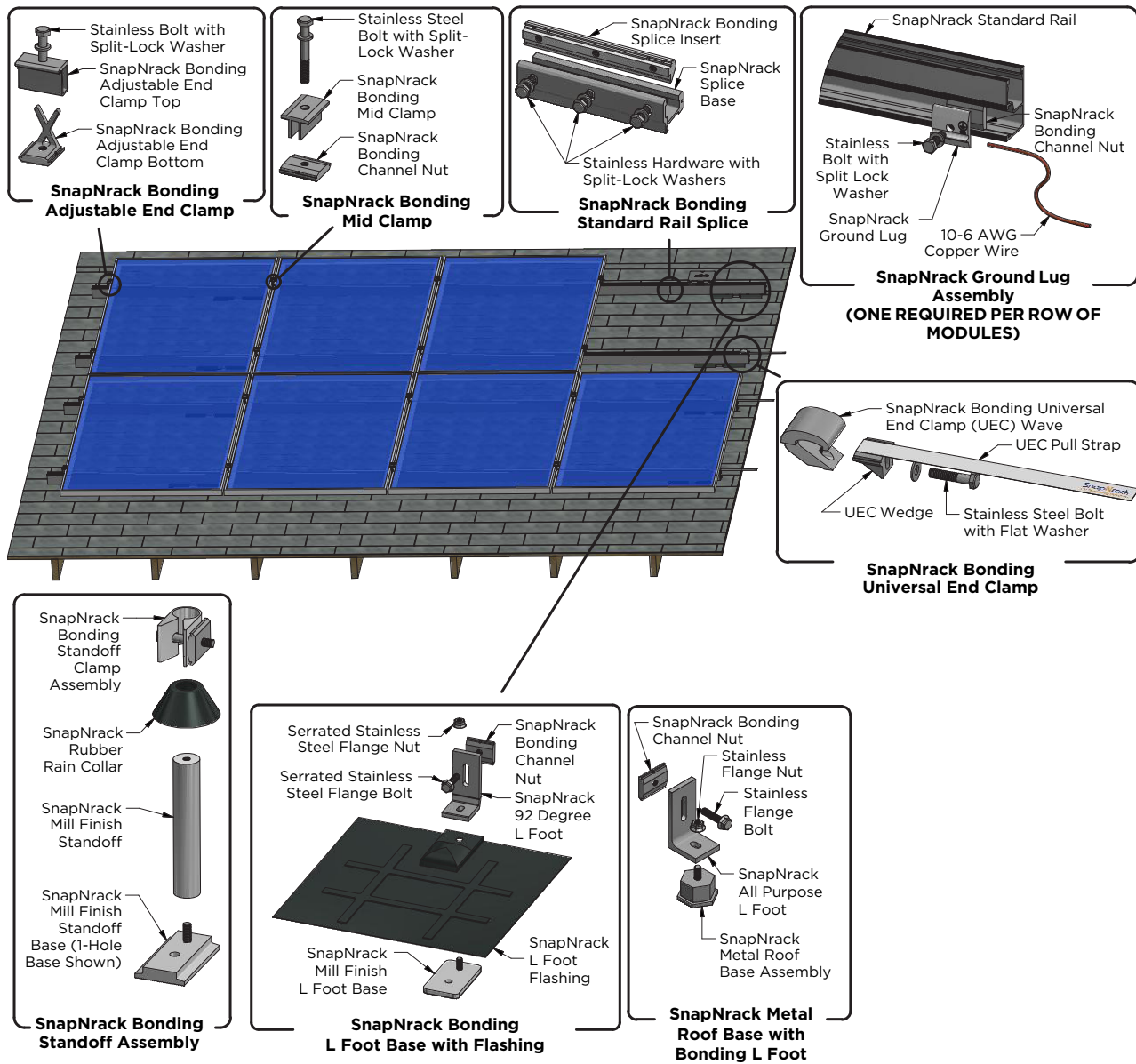
Patent Pending



Roof System in 4 Simple Steps:

- 1) Go to the online Series 100 Configuration Tool (configure.snapnrack.com) and select "Yes" for UL 2703 Listed
- 2) Identify Site Conditions (Array Tilt, Building Height, Roof Type, Wind and Snow Loads)
- 3) Build array in the online Configuration Tool and automatically generate a Bill of Materials.
- 4) Place order with your distributor. Purchase material for a single project or order in bulk for additional savings





SnapNrack Series 100 UL Technical Data Patent Pending	
Materials	<ul style="list-style-type: none"> • 6000 Series aluminum • Stainless steel • Galvanized Steel and Aluminum Flashing
Material Finish	<ul style="list-style-type: none"> • Clear and black anodized aluminum • Mill Finish on select components
Installation	<ul style="list-style-type: none"> • Quick and efficient mounting • Adjustable hardware to ensure clean and level finish • All components bonded to ground with integrated bonding features
Calcs. & Certifications	<ul style="list-style-type: none"> • Listed to UL Standard 2703 for Grounding/Bonding and Fire Classification • Class A Fire Rating Type 1 and Type 2 Modules • Stamped Structural Engineering Reports for all 50 States
Grounding	<ul style="list-style-type: none"> • SnapNrack Grounding Lug (One Lug per individual row of modules)
Warranty	<ul style="list-style-type: none"> • 10 Year material and workmanship (download full details at snapnrack.com)

SnapNrack™

Solar Mounting Solutions

(877) 732-2860 www.SnapNrack.com

DESCRIPTION:

SNAPNRACK, UNIVERSAL WIRE CLAMP

DRAWN BY:

mwatkins

REVISION:

A

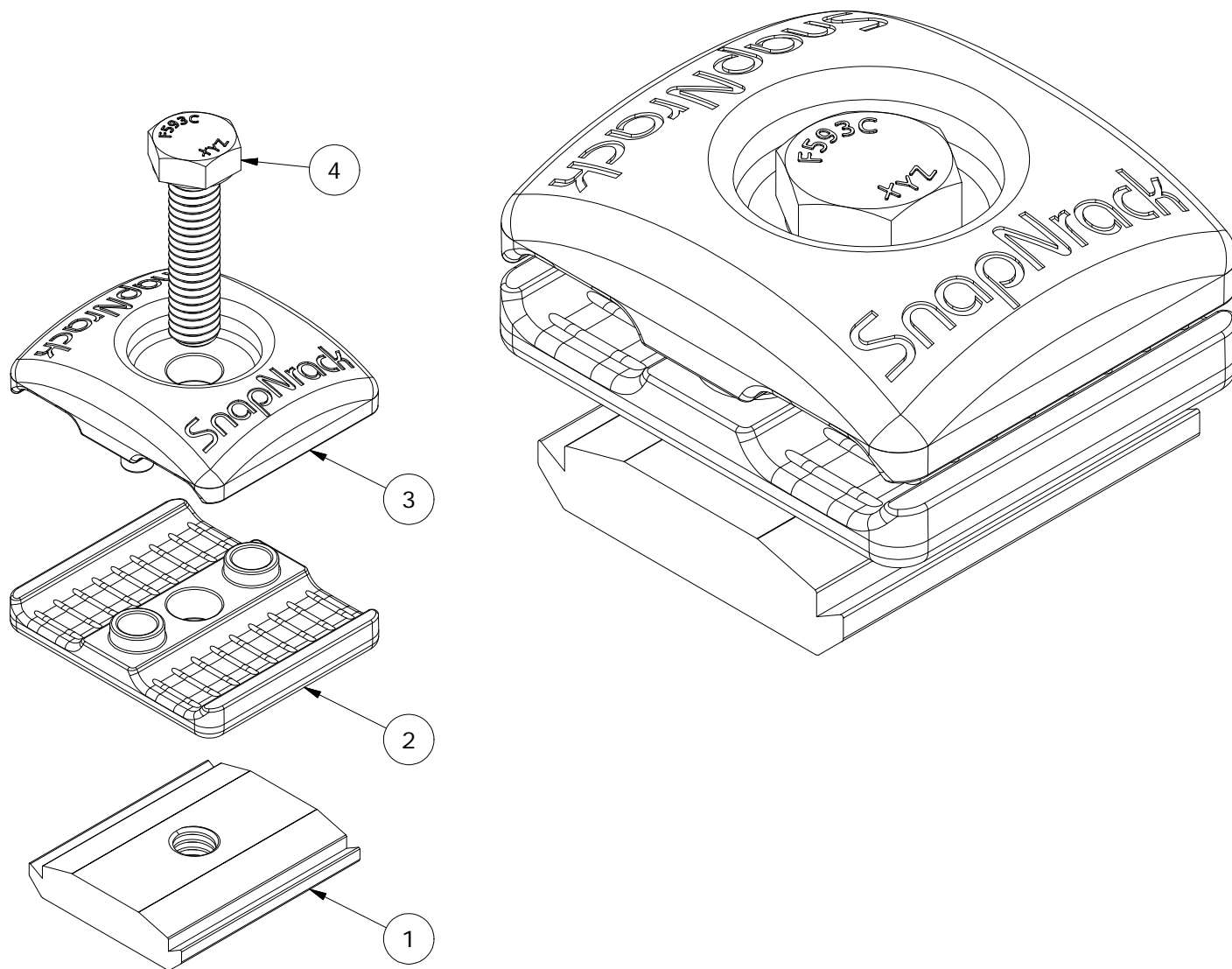
SnapNrack™
Solar Mounting Solutions

PART NUMBER(S):

242-02150

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

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PARTS LIST

ITEM	QTY	DESCRIPTION
1	1	SNAPNRACK CHANNEL NUT 5/16IN-18
2	1	SNAPNRACK, WIRE CLAMP BOTTOM, 1-4 CONDUCTOR, 0.21 - 0.45IN, PLASTIC
3	1	SNAPNRACK, WIRE CLAMP TOP, 1-4 CONDUCTOR, 0.21 - 0.45IN, PLASTIC
4	1	BOLT, HEX CAP, 5/16IN-18 X 1-1/4IN, SS

MATERIALS:

BLACK RYNITE, 6000 SERIES ALUMINUM, STAINLESS STEEL

DESIGN LOAD (LBS):

N/A

ULTIMATE LOAD (LBS):

N/A

TORQUE SPECIFICATION:

N/A LB-FT

CERTIFICATION:

N/A

WEIGHT (LBS):

0.13

DESCRIPTION:

SNAPNRACK, UNIVERSAL WIRE CLAMP

DRAWN BY:

mwatkins

REVISION:

A

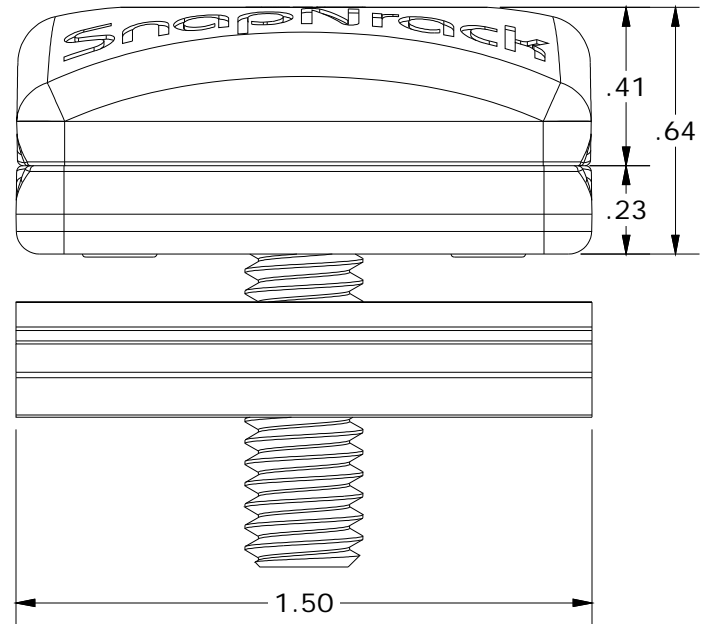
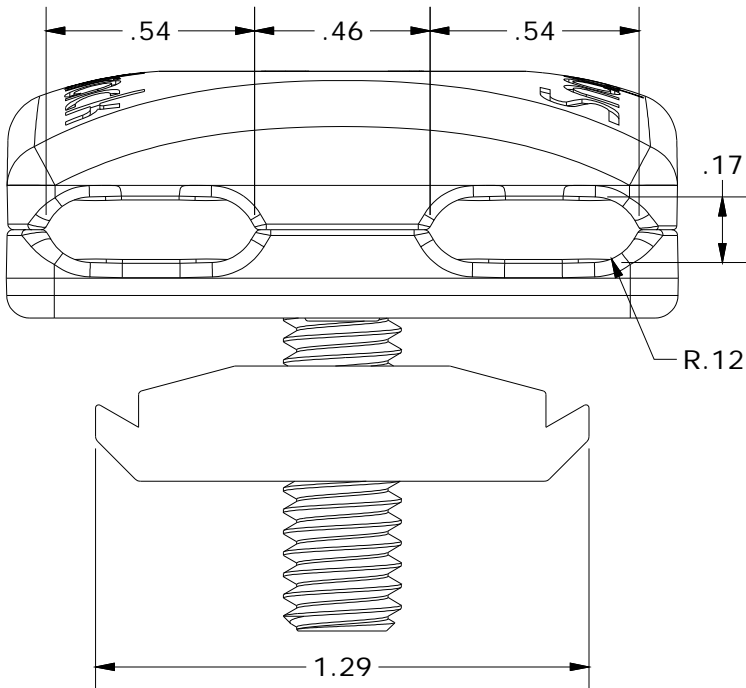
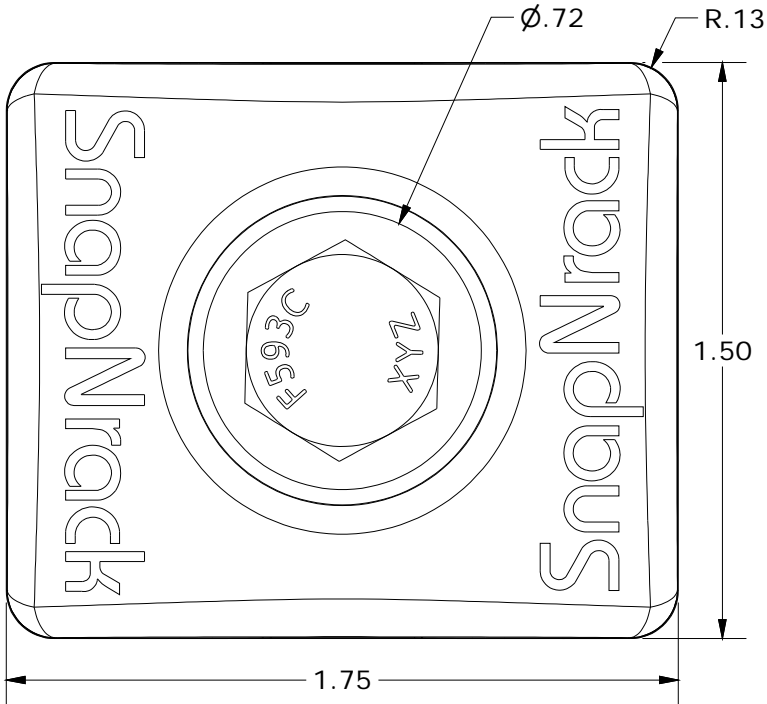
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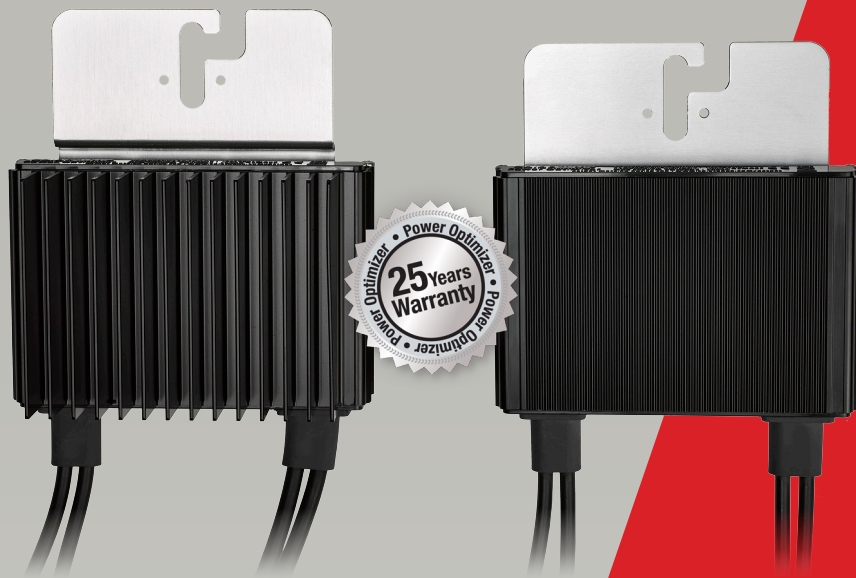


ALL DIMENSIONS IN INCHES



Power Optimizer

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



Power Optimizer

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		%
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 ⁽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 SOLAREEDGE INVERTER ⁽³⁾⁽⁴⁾	SINGLE PHASE HD-WAVE		SINGLE PHASE	THREE PHASE 208V	THREE PHASE 480V	
	P320, P370, P400 P405 / P505					
Minimum String Length (Power Optimizers)		8		10	18	
Maximum String Length (Power Optimizers)		25		25	50 ⁽⁵⁾	
Maximum Power per String		5700 (6000 with SE7600-US - SE11400- 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

SE3000A-US / SE3800A-US / SE5000A-US / SE6000A-US /
SE7600A-US / SE10000A-US / SE11400A-US



INVERTERS

The best choice for SolarEdge enabled systems

- Specifically designed to work with power optimizers
- Superior efficiency (98%)
- 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 outdoors or indoors on provided bracket
- Built-in module-level monitoring
- Internet connection through Ethernet or Wireless
- Fixed voltage inverter for longer strings
- Optional – revenue grade data, ANSI C12.1



Single Phase Inverters for North America

SE3000A-US / SE3800A-US / SE5000A-US / SE6000A-US /
SE7600A-US / SE10000A-US / SE11400A-US

	SE3000A-US	SE3800A-US	SE5000A-US	SE6000A-US	SE7600A-US	SE10000A-US	SE11400A-US	
OUTPUT								
Nominal AC Power Output	3000	3800	5000	6000	7600	9980 @ 208V 10000 @ 240V	11400	VA
Max. AC Power Output	3300	4150	5400 @ 208V 5450 @ 240V	6000	8350	10800 @ 208V 10950 @ 240V	12000	VA
AC Output Voltage Min.-Nom.-Max. ⁽¹⁾ 183 - 208 - 229 Vac	-	-	✓	-	-	✓	-	
AC Output Voltage Min.-Nom.-Max. ⁽¹⁾ 211 - 240 - 264 Vac	✓	✓	✓	✓	✓	✓	✓	
AC Frequency Min.-Nom.-Max. ⁽¹⁾	59.3 - 60 - 60.5							Hz
Max. Continuous Output Current	12.5	16	24 @ 208V 21 @ 240V	25	32	48 @ 208V 42 @ 240V	47.5	A
GFDI Threshold	1							A
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes							Yes
INPUT								
Maximum DC Power (STC)	4050	5100	6750	8100	10250	13500	15350	W
Transformer-less, Ungrounded	Yes							
Max. Input Voltage	500							
Nom. DC Input Voltage	325 @ 208V / 350 @ 240V							
Max. Input Current ⁽²⁾	9.5	13	16.5 @ 208V 15.5 @ 240V	18	23	33 @ 208V 30.5 @ 240V	34.5	Adc
Max. Input Short Circuit Current	45							
Reverse-Polarity Protection	Yes							
Ground-Fault Isolation Detection	600k Ω Sensitivity							
Maximum Inverter Efficiency	97.7	98.2	98.3	98.3	98	98	98	%
CEC Weighted Efficiency	97.5	98	97 @ 208V 98 @ 240V	97.5	97.5	97 @ 208V 97.5 @ 240V	97.5	%
Nighttime Power Consumption	< 2.5					< 4		W
ADDITIONAL FEATURES								
Supported Communication Interfaces	RS485, RS232, Ethernet, ZigBee (optional)							
Revenue Grade Data, ANSI C12.1	Optional ⁽³⁾							
Rapid Shutdown - NEC 2014 and 2017 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect ⁽⁵⁾							
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 part15 class B							
INSTALLATION SPECIFICATIONS								
AC output conduit size / AWG range	3/4" minimum / 16-6 AWG					3/4" minimum / 8-3 AWG		
DC input conduit size / # of strings / AWG range	3/4" minimum / 1-2 strings / 16-6 AWG					3/4" minimum / 1-3 strings / 14-6 AWG		
Dimensions with Safety Switch (HxWxD)	30.5 x 12.5 x 7.2 / 775 x 315 x 184					30.5 x 12.5 x 10.5 / 775 x 315 x 260		
Weight with Safety Switch	51.2 / 23.2		54.7 / 24.7			88.4 / 40.1		
Cooling	Natural Convection				Natural convection and internal fan (user replaceable)		Fans (user replaceable)	
Noise	< 25					< 50		
Min.-Max. Operating Temperature Range	-13 to +140 / -25 to +60 (-40 to +60 version available ⁽⁴⁾)							
Protection Rating	NEMA 3R							

⁽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.

⁽³⁾ Revenue grade inverter P/N: SExxxxA-US000NNR2 (for 7600W inverter:SE7600A-US002NNR2).

⁽⁴⁾ -40 version P/N: SExxxxA-US000NNU4 (for 7600W inverter:SE7600A-US002NNU4).

⁽⁵⁾ P/Ns SExxxxA-US0xxxxx have Manual Rapid Shutdown for NEC 2014 compliance (NEC 2017 compliance with outdoor installation)



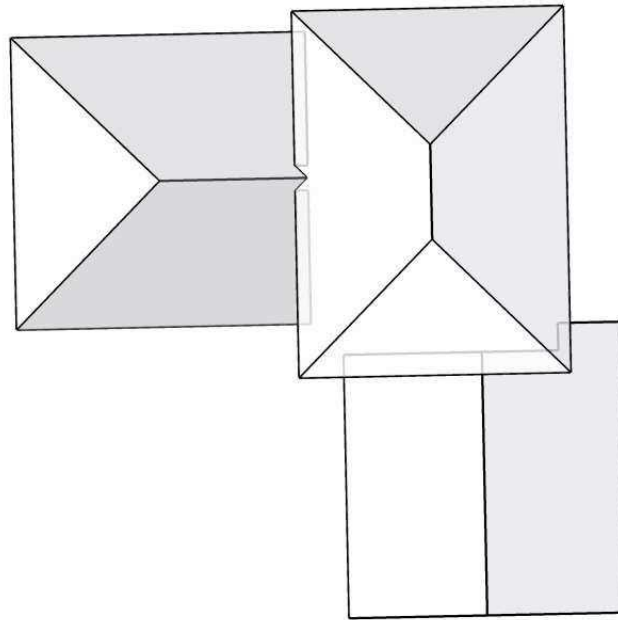


Sunrun Installation Services, Inc.
2309 South Mount Prospect Road
Des Plaines, IL 60018

Location: 7420 W 157th St, Orland Park, IL 60462

PV Panel Area	593.1 sq ft
Roof Total Area	3085 sq ft
PV Panel Percentage of Roof	19.2%

7420 W. 157th St, Orland Park, IL 60462



In this 3D model, facets appear as semi-transparent to reveal overhangs.

Report Details

Report: 24580051
Claim: 711R-420ULEV

Roof Details

Total Area =3,085 sq ft
Total Roof Facets =9
Predominant Pitch =4/12
Number of Stories >1
Total Ridges/Hips =183 ft
Total Valleys =4 ft
Total Rakes =38 ft
Total Eaves =286 ft
Total Penetrations =12
Total Penetrations Perimeter = 53 ft
Total Penetrations Area = 17 sq ft

Report Contents

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Report Summary13
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Contact: Sunrun BulkAccount
Company: Sunrun

Address: 595 Market St
San Francisco CA 94105
Phone: 855-478-6786

Measurements provided by www.eagleview.com

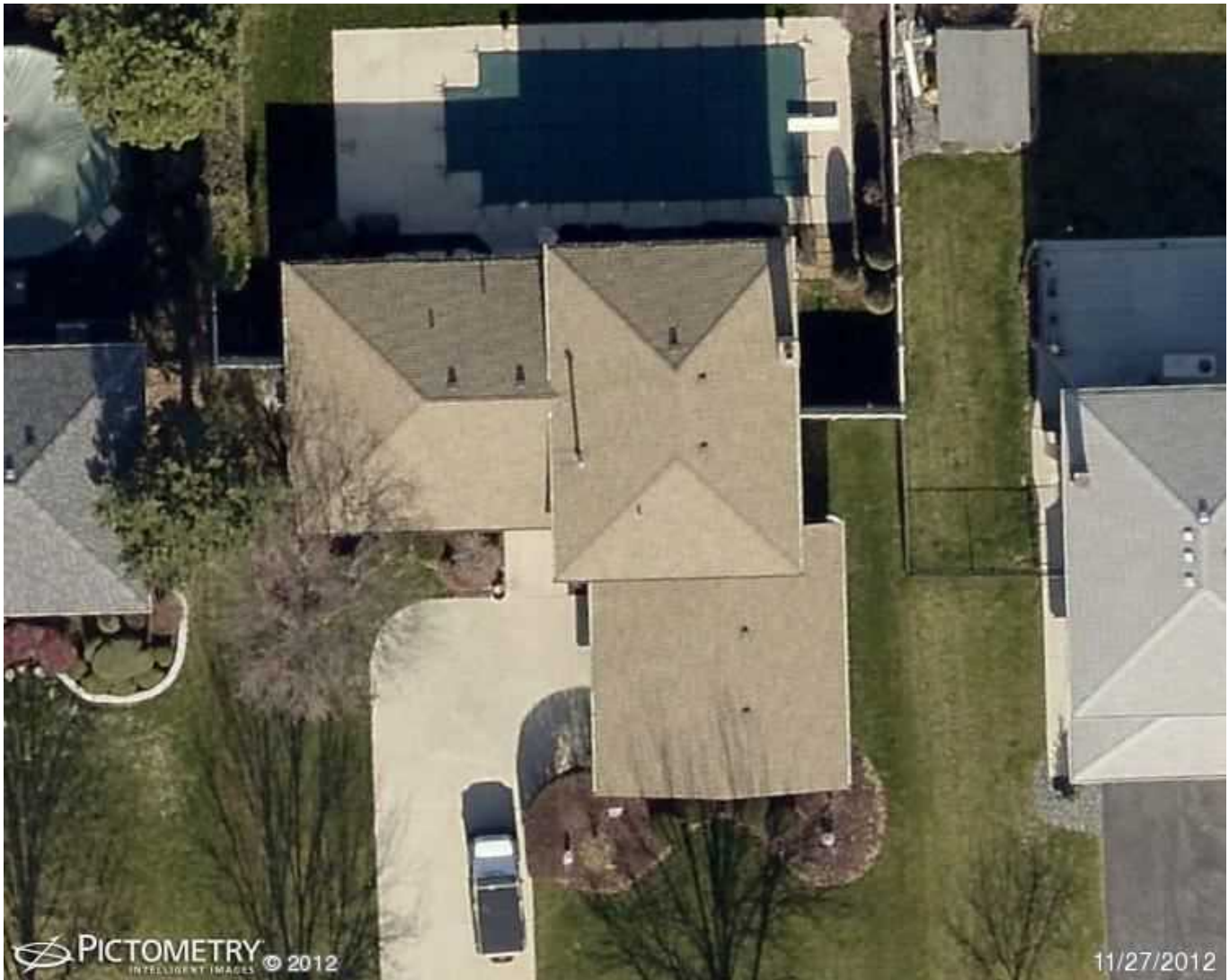


Certified Accurate
www.eagleview.com/Guarantee.aspx

Images

The following aerial images show different angles of this structure for your reference.

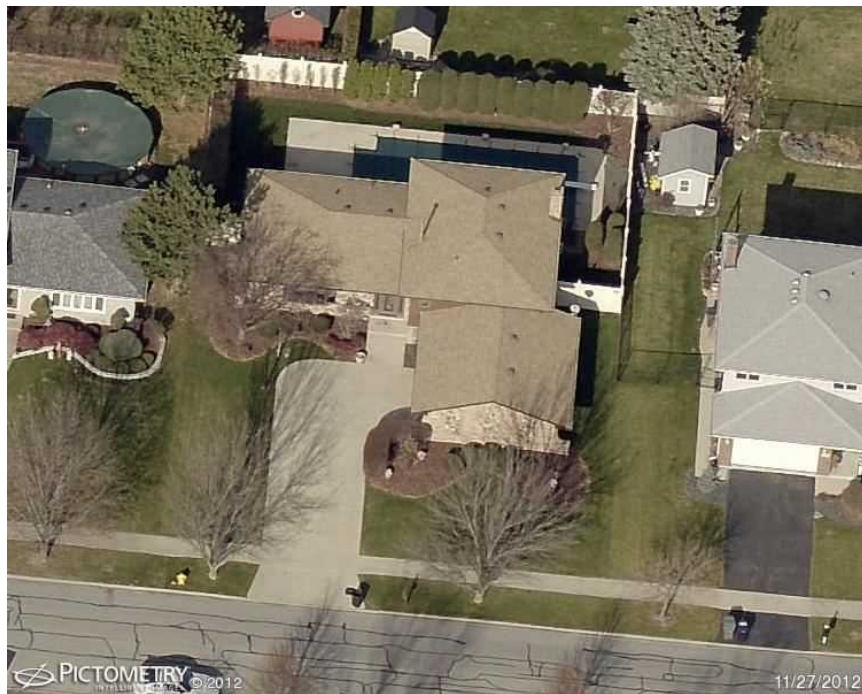
Top View



North Side



South Side



East Side



West Side

