










<b>MP#1</b>	Pitch:	8.5	/12
	Azimuth:	154	°
<b>MP#2</b>	Pitch:	9.5	/12
	Azimuth:	65	°

↑  
NORTH

**EQUIPMENT LEGEND**

-  UTILITY METER
-  MAIN SERVICE PANEL
-  LOAD CENTER
-  AC DISCONNECT
-  METER SOCKET (FOR UTILITY PV METER)
-  INVERTER
-  JUNCTION BOX
-  BATTERY(IES)
-  FIRE ACCESS PATHWAY (3' TYP.)

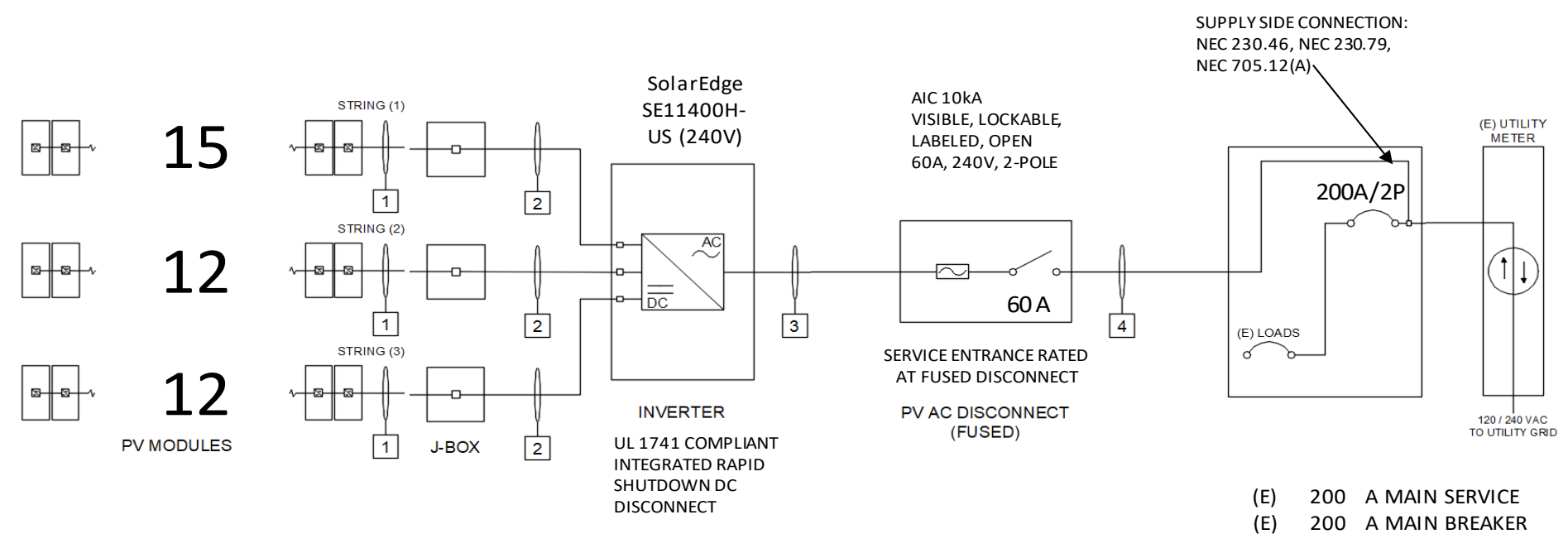
<b>ADDRESS:</b> Ruth Frame 1296 Young Rd Angier NC 27501	<b>CONTRACTOR:</b> GAF Energy LLC (NC) 973.628.3411 U.33879	<b>EQUIPMENT:</b> 14.04 KW (DC) 39 Solaria PowerXT 360R-PD	<b>DATE</b> 9/16/2021	<b>REV</b> 0
	125 Mitchell Blvd, Suite D San Rafael CA 94903	11.4 KW (AC) (1) SolarEdge SE11400H-US (240V)	PV2 SITE PLAN	
			<b>BY:</b> CBennett	



**WIRE SCHEDULE**

<b>1</b>	(1) #10 AWG PV-WIRE, USE-2 COPPER (POS)	<b>2</b>	(1) #10 AWG THWN-2 (POS)	<b>3</b>	(1) #6 AWG THWN-2 (L1)	<b>4</b>	(1) #6 AWG THWN-2 (L1)	<b>5</b>		<b>6</b>	
	(1) #10 AWG PV-WIRE, USE-2 COPPER (NEG)		(1) #10 AWG THWN-2 (NEG)		(1) #6 AWG THWN-2 (L2)		(1) #6 AWG THWN-2 (L2)				
	(1) #12 AWG BARE, COPPER (GROUND)		(1) #10 AWG THWN-2 (GND)		(1) #6 AWG THWN-2 (NEUT)		(1) #6 AWG THWN-2 (NEUT)				
	(1) 3/4in EMT CONDUIT		(1) 3/4in EMT CONDUIT		(1) #10 AWG THWN-2 (GND)		(1) #10 AWG THWN-2 (GND)				
(OR CODE APPROVED EQUIVALENT)		(OR CODE APPROVED EQUIVALENT)		(OR CODE APPROVED EQUIVALENT)		(OR CODE APPROVED EQUIVALENT)		(OR CODE APPROVED EQUIVALENT)		(OR CODE APPROVED EQUIVALENT)	

**Vmp (Vdc):** 400    **Imp (Adc):** 13.50  
**Voc (Vdc):** 480    **Isc (Adc):** 30.50  
**V (Vac):** 240      **I (Aac):** 47.5  
Inverter 1



**INTERCONNECTION NOTES**

- GROUND FAULT PROTECTION IN ACCORDANCE WITH [NEC 215.9] & [NEC 230.95]
- SUPPLY SIDE INTERCONNECTION ACCORDING TO [NEC 705.12(A)] WITH SERVICE ENTRANCE CONDUCTORS IN ACCORDANCE WITH [NEC 240.21(B)]

**DISCONNECT NOTES**

- DISCONNECTING SWITCHES SHALL BE WIRED SUCH THAT WHEN THE SWITCH IS OPENED THE CONDUCTORS REMAINING LIVE ARE CONNECTED TO THE TERMINALS MARKED "LINE SIDE" (TYPICALLY THE UPPER TERMINALS)
- AC DISCONNECT MUST BE ACCESSIBLE TO QUALIFIED UTILITY PERSONNEL, BE LOCKABLE, AND BE A VISIBLE-BREAK SWITCH

**GROUNDING & GENERAL NOTES**

- A SECOND FACILITY GROUNDING ELECTRODE IS NOT REQUIRED PER [NEC 690.47(C)(3)]
- PV INVERTER IS UNGROUNDED, TRANSFORMER-LESS TYPE.
- DC GEC AND AC EGC TO REMAIN UNSPLICED, OR SPLICED TO EXISTING ELECTRODE
- ANY EXISTING WIRING INVOLVED WITH PV SYSTEM CONNECTION THAT IS FOUND TO BE INADEQUATE PER CODE SHALL BE CORRECTED PRIOR TO FINAL INSPECTION.
- JUNCTION BOX QUANTITIES, AND PLACEMENT SUBJECT TO CHANGE IN THE FIELD - JUNCTION BOXES DEPICTED ON ELECTRICAL DIAGRAM REPRESENT WIRE TYPE TRANSITIONS.
- AC DISCONNECT NOTED IN EQUIPMENT SCHEDULE OPTIONAL IF OTHER AC DISCONNECTING MEANS IS LOCATED WITHIN 10' OF SERVICE DISCONNECT.
- SOLAREGE INVERTERS WHEN USED WILL INCLUDE RS-485 OR ETHERNET COMMUNICATIONS PORT.

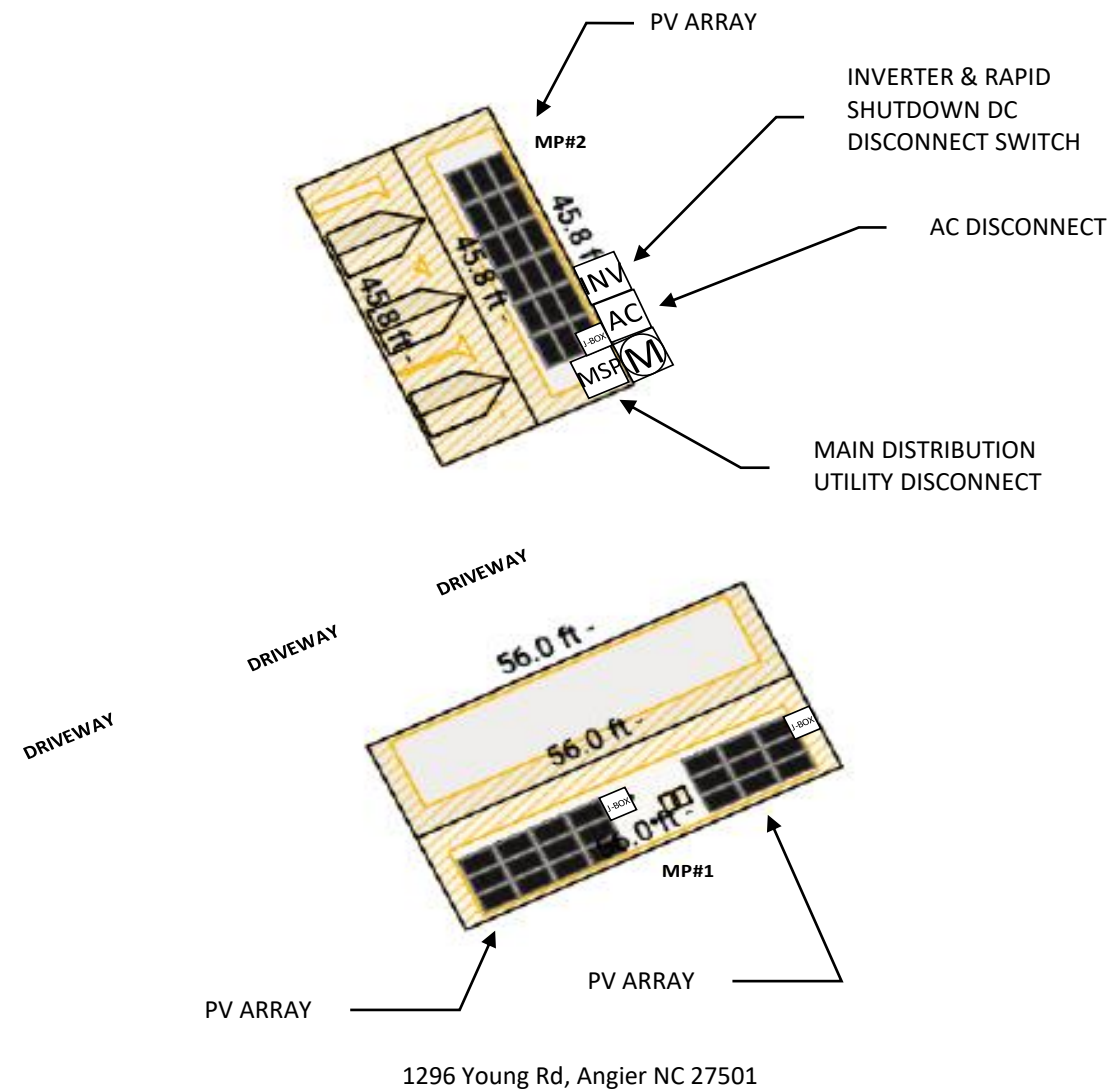
EQUIPMENT SCHEDULE			
TYPE	QTY	DESCRIPTION	RATING
PV Modules	(39)	Solaria PowerXT 360R-PD	360W
DC Optimizers	(39)	P370	15Adc
Inverter	(1)	SolarEdge SE11400H-US (240V)	11400W

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			<b>BY:</b> CBennett



# CAUTION

POWER TO THIS BUILDING IS ALSO SUPPLIED FROM ROOF MOUNTED SOLAR ARRAYS WITH SAFETY DISCONNECTS SHOWN:



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					<b>BY:</b> CBennett

# 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 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
- Built-in module-level monitoring
- Outdoor and indoor installation
- Optional: Revenue grade data, ANSI C12.20 Class 0.5 (0.5% accuracy)

solaredge.com



## Single Phase Inverter with HD-Wave Technology 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		
<b>OUTPUT</b>									
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)	✓	✓	✓	✓	✓	✓	✓	Vac	
AC Output Voltage Min.-Nom.-Max. (183 - 208 - 229)	-	✓	-	✓	-	-	✓	Vac	
AC Frequency (Nominal)	59.3 - 60 - 60.5 <sup>1)</sup>							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	
GFDI Threshold	1							A	
Utility Monitoring, Islanding Protection, Country Configurable Thresholds	Yes								
<b>INPUT</b>									
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							Vdc	
Nominal DC Input Voltage	380				400			Vdc	
Maximum Input Current @240V <sup>2)</sup>	8.5	10.5	13.5	16.5	20	27	30.5	Adc	
Maximum Input Current @208V <sup>2)</sup>	-	9	-	13.5	-	-	27	Adc	
Max. Input Short Circuit Current	45							Adc	
Reverse-Polarity Protection	Yes								
Ground-Fault Isolation Detection	600ka Sensitivity								
Maximum Inverter Efficiency	99	99.2						%	
CEC Weighted Efficiency	99						99 @ 240V 98.5 @ 208V	%	
Nighttime Power Consumption	< 2.5							W	
<b>ADDITIONAL FEATURES</b>									
Supported Communication Interfaces	RS485, Ethernet, ZigBee (optional), Cellular (optional)								
Revenue Grade Data, ANSI C12.20	Optional <sup>3)</sup>								
Rapid Shutdown - NEC 2014 and 2017 690.12	Automatic Rapid Shutdown upon AC Grid Disconnect								
<b>STANDARD COMPLIANCE</b>									
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 (H)								
Emissions	FCC Part 15 Class B								
<b>INSTALLATION SPECIFICATIONS</b>									
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	-13 to +140 / -25 to +60 <sup>4)</sup> (-40°F / -40°C option) <sup>5)</sup>							°F / °C	
Protection Rating	NEMA 4X (Inverter with Safety Switch)								

<sup>1)</sup> For other regional settings please contact SolarEdge support

<sup>2)</sup> A higher current source may be used; the inverter will limit its input current to the values stated

<sup>3)</sup> Revenue grade inverter P/N: SExxxxH-US000NNC2

<sup>4)</sup> For power de-rating information refer to: <https://www.solaredge.com/sites/default/files/se-temperature-derating-note-na.pdf>

<sup>5)</sup> -40 version P/N: SExxxxH-US000NNU4

# 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)	
<b>INPUT</b>							
Rated Input DC Power <sup>(1)</sup>	320	340	370	400	405	505	W
Absolute Maximum Input Voltage (Voc at lowest temperature)	48		60	80	125 <sup>(2)</sup>	87 <sup>(2)</sup>	Vdc
MPPT Operating Range	8 - 48		8 - 60	8 - 80	12.5 - 105	12.5 - 87	Vdc
Maximum Short Circuit Current (Isc)	11			10.1		14	Adc
Maximum DC Input Current	13.75			12.5		17.5	Adc
Maximum Efficiency	99.5						%
Weighted Efficiency	98.8					98.6	%
Overvoltage Category	II						
<b>OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER)</b>							
Maximum Output Current	15						Adc
Maximum Output Voltage	60			85			Vdc
<b>OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF)</b>							
Safety Output Voltage per Power Optimizer	1 ± 0.1						Vdc
<b>STANDARD COMPLIANCE</b>							
EMC	FCC Part15 Class B, IEC61000-6-2, IEC61000-6-3						
Safety	IEC62109-1 (class II safety), UL1741						
Material	UL94 V-0, UV Resistant						
RoHS	Yes						
<b>INSTALLATION SPECIFICATIONS</b>							
Maximum Allowed System Voltage	1000						Vdc
Compatible inverters	All SolarEdge Single Phase and Three Phase inverters						
Dimensions (W x L x H)	129 x 153 x 27.5 / 5.1 x 6 x 1.1		129 x 153 x 33.5 / 5.1 x 6 x 1.3	129 x 159 x 49.5 / 5.1 x 6.3 x 1.9	129 x 162 x 59 / 5.1 x 6.4 x 2.3		mm / in
Weight (including cables)	630 / 1.4		750 / 1.7	845 / 1.9	1064 / 2.3		gr / lb
Input Connector	Single or dual MC4 <sup>(3)</sup>						
Input Wire Length	0.16 / 0.52						m / ft
Output Wire Type / Connector	Double Insulated / MC4						
Output Wire Length	0.9 / 2.95		1.2 / 3.9				m / ft
Operating Temperature Range	-40 - +85 / -40 - +185						°C / °F
Protection Rating	IP68 / NEMA6P						
Relative Humidity	0 - 100						%

<sup>(1)</sup> Rated power of the module at STC will not exceed the optimizer "Rated Input DC Power". Modules with up to +5% power tolerance are allowed

<sup>(2)</sup> NEC 2017 requires max input voltage be not more than 80V

<sup>(3)</sup> For other connector types please contact SolarEdge

PV System Design Using a SolarEdge Inverter <sup>(4)(5)</sup>		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		13 (12 with SE3K)	14	
Maximum String Length (Power Optimizers)		25		25	50 <sup>(6)</sup>	
Maximum Power per String	5700 (6000 with SE7600-US - SE11400-US)	5250	6000 <sup>(7)</sup>	12750 <sup>(8)</sup>		W
Parallel Strings of Different Lengths or Orientations	Yes					

<sup>(4)</sup> For detailed string sizing information refer to: [http://www.solaredge.com/sites/default/files/string\\_sizing\\_na.pdf](http://www.solaredge.com/sites/default/files/string_sizing_na.pdf)

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

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

<sup>(7)</sup> 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

<sup>(8)</sup> 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





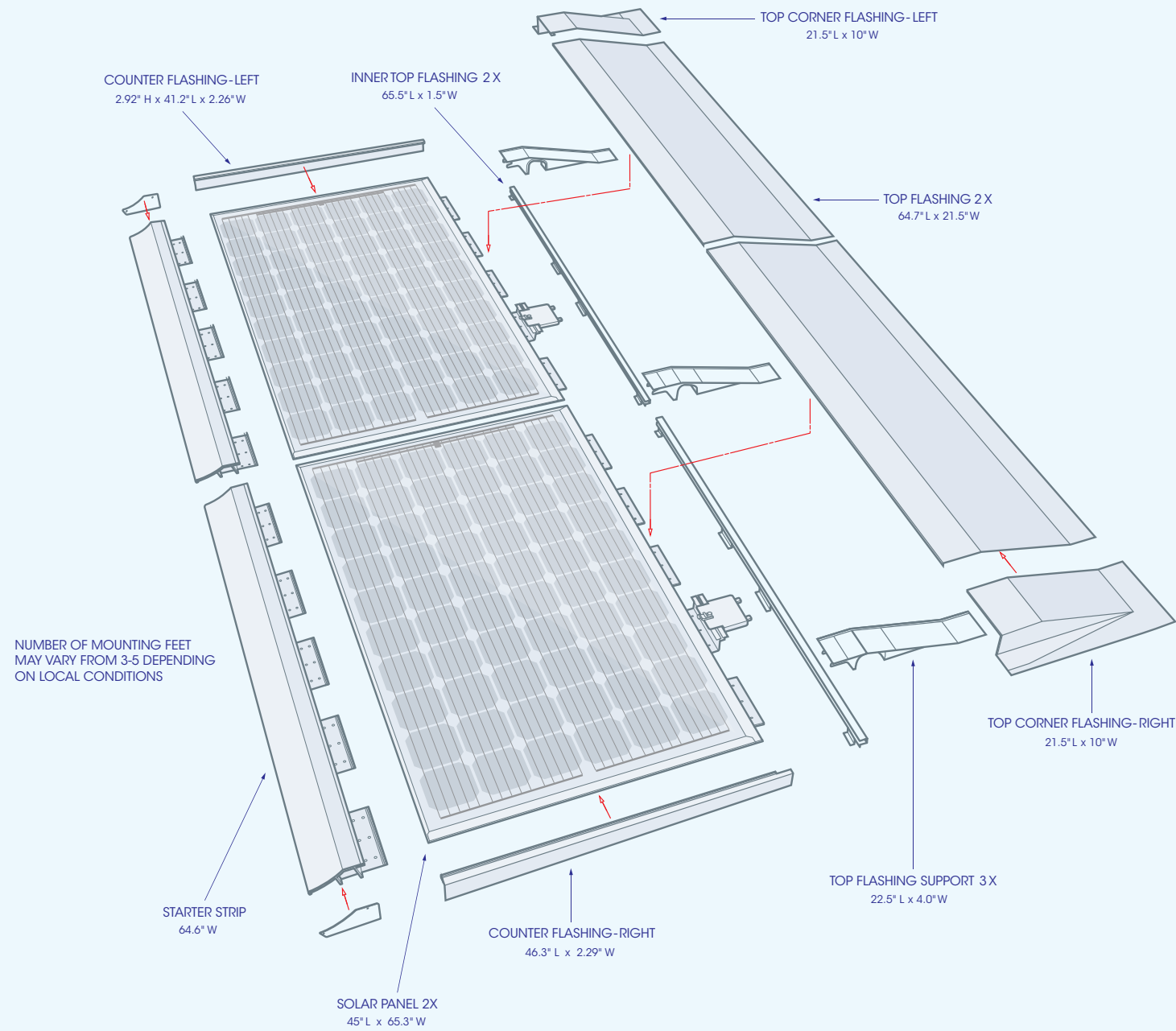
# Solar Energy System



# Solar Energy System

TECH DATA

## Dimensions



## Description

The sleek, low-profile design of the GAF Energy solar energy system delivers performance and curb appeal at an affordable price.

## Product Installation

Refer to the Application Instructions for details on how to install the GAF Energy solar energy system.



## Design Considerations

- GAF Energy solar energy system must be installed in landscape orientation.
- Certified for direct attachment to roof deck. The roof deck must be a minimum of 15/32" thick plywood or 7/16" thick OSB.
- System is installed directly to the roof deck without engaging rafters.
- GAF Energy solar energy system is intended for use solely on roofs having a slope between 4:12 and 12:12.
- DC optimizers and AC inverters can be used.
- Asphalt shingle installations only.

## Technical Specifications

Model Number	GAF Solar Energy System	Cells per module	60
PV Laminate	Solaria PowerXT	Cell type	Monocrystalline
Maximum Power under STC* (Pmax)	360 Wp	PV Connector Type	PV wire with MC4 compatible
Open Circuit Voltage under STC (Voc)	47.7 V	PV Laminate Front	3.2 mm high transmittance, tempered, ar coating
Maximum Power Point Voltage under STC (Vmpp)	39.5 V	PV Laminate Back	Multi-layer Polymer Backsheet
Short Circuit Current under STC (Isc)	9.56 A	Frame	Black Powder Coated Aluminum
Maximum Power Point Current under STC (Impp)	9.13 A	Weight	40.0 lb. (22.2 kg)
Module Efficiency under STC (ηm)	19.9%	Operating Temperatures	-40 to +185°F (-40 to +85°C)
Temperature Correction Factor TC Voc	-0.29%/C	Design Loading	50 lb./ft <sup>2</sup> (244 kg/m <sup>2</sup> ) Positive Design Load
		Certifications	PowerXT-360-R-PD-L UL 1703
		Fire Rating	UL 2703 Class A



\*STC: Standard Test Conditions 1000W/m<sup>2</sup>, 25°C, AM 1.5. For additional parameters and certifications, refer to the latest version of the GAF Energy solar system Application Instructions