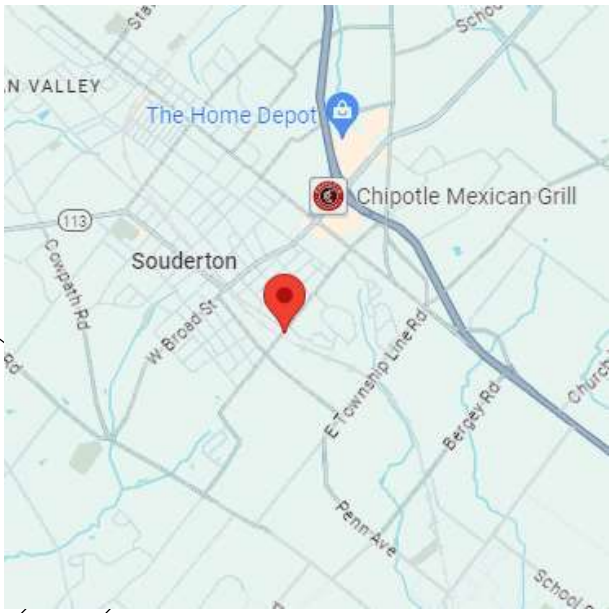


Wire mesh to be installed on array to protect module wiring



Customer		James Gunden	
Zion Mennonite Church		88.0 KW DC, 67.3 KW AC	
149 Cherry Lane		jmgunden@gmail.com	
Souderton PA 18964		215 760 7356	
Utility Company		PPL Electric	
County		Montgomery	
Municipality		Borough of Souderton	
Third Party Agency			
Applicable codes and standards			
2017	National Electric Code		
2018	IBC (PA UCC)		
Design Criteria			
Design wind load	105 MPH		
Design snow load	25 PSF		
Exposure Category	C		
Seismic Category	D		
High Temp (ASHREA 2% High)			33C
Low Temp (ASHRAE Extreme Low)			-15C
Array Azimuth			180
Array tilt			24

Title		
Zion Mennonite Church		
Author		
J King ICC134395		
Powerstream Solar & Electric		
File		Document Plot
Revision	Date	Sheets
1.0	3/27/24	1 of 1



Measurements

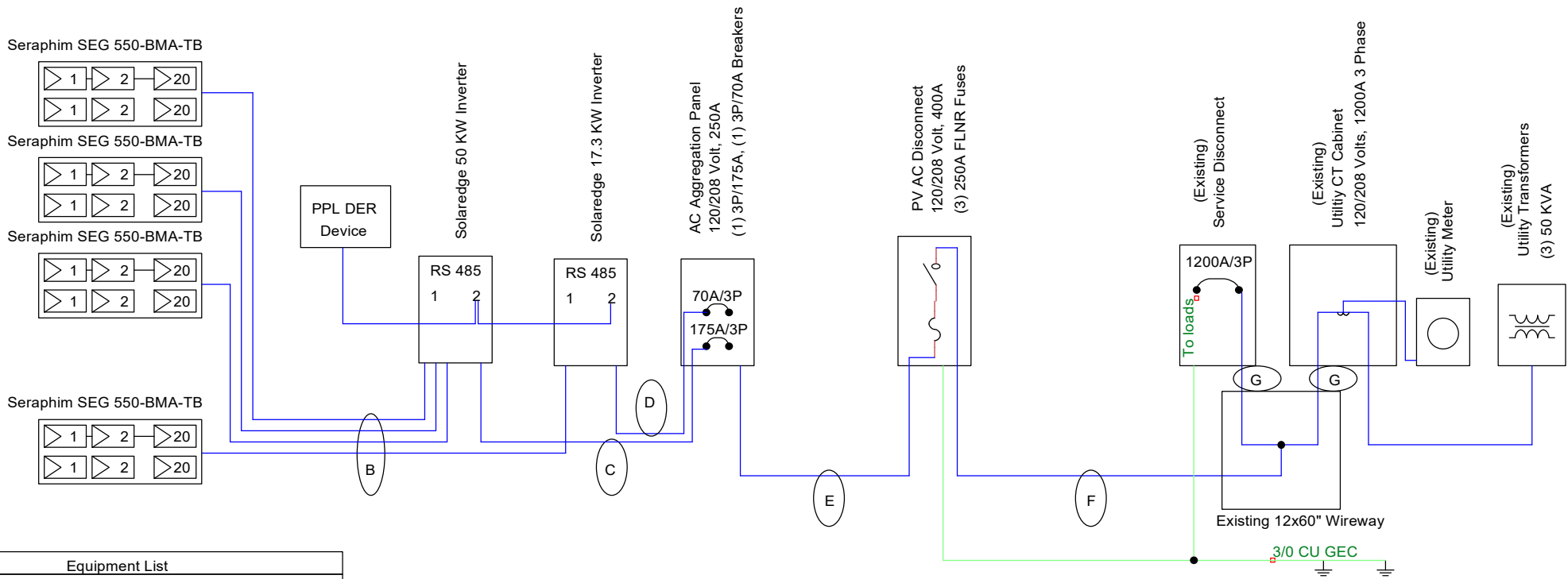
Measurement Result

568.4 Feet



ur measure tool from the measurement panel. (area or  
 gle click on the map to start, single click again to end each

Title	Zion Mennonite Church	
Author	J.King ICC134395	
File	Powerstream Solar & Electric	
Revision	340000742304 34001077 340000742403	Document Plot Sheets
Date	34001078	2
1.0	3/27/24	



Equipment List	
Modules	160 SEG 550 BMA-TB
Inverter	1= Solaredge SE17.3K-US 1= Solaredge SE50K-US
MLPE	80- Solaredge S1200 Optimizers
Combiner Subpanel	Siemens 250A ML
PV AC Disconnect	Siemens HF325NRA
Racking	Solar Foundations
Roof Attachments	N/A
Array	
Seraphim SEG 550 BMA-TB	
VOC 49.7	VMP 42.05
ISC 14.0	IMP 13.08
Array VOC 600	Array VMP 450
Maximum String Length is 23 Modules	
Minimum String Length is 19 Modules	
Inverter	
17.3K Output 48.25 AAC @208 Volts	
50K Output 139.5 AAC @208 Volts	
Combined Output 187.75 AAC	

Wire Key	
A	10 Awg PV Wire (modules to roof junction box)
B	(2) 4 Sets 8 Awg Thwn, #8 Ground in 2" HDPE Conduit
C	3- 2/0 Awg Thwn, 6 Awg neutral, #6 ground in 1.5" EMT
D	3- 4 Awg Thwn, 8 Awg neutral, #8 ground in 1" EMT
E	3- 250 Kcm Thwn, 4 Awg neutral, #4 ground in 2.5" EMT
F	3- 250 Kcm Thwn, 2 Awg neutral in 2.5" EMT
G	(3) 3- 500 Kcm Thwn, 500 Kcm neutral in 4" PVC (Existing)

Notes		
Conductors to be CU unless otherwise noted		
PV system to be grounded per NEC 690.47		
Labels to be installed per NEC 690, see label sheet		
Installer may use piercing tap connectors for supply side connection		
Installer must observe maximum module string length as noted		
EMT type conduit to be galvanized steel unless noted.		
Title		
Zion Mennonite Church		
Author		
J King ICC134395		
Powerstream Solar & Electric		
File		Document
		SLD
Revision	Date	Sheets
1.0	3/27/24	3

PV AC Disconnect

**PV SYSTEM DISCONNECT**

**PHOTOVOLTAIC SYSTEM AC DISCONNECT**

RATED AC OUTPUT CURRENT 188 A  
 NOMINAL OPERATING AC VOLTAGE 208 V

**RAPID SHUTDOWN SWITCH FOR SOLAR PV SYSTEM**

**SOLAR PV SYSTEM EQUIPPED WITH RAPID SHUTDOWN**

TURN RAPID SHUTDOWN SWITCH TO THE "OFF" POSITION TO SHUT DOWN CONDUCTORS OUTSIDE THE ARRAY. CONDUCTORS WITHIN THE ARRAY REMAIN ENERGIZED IN SUNLIGHT.

Inverters

**WARNING**  
 ELECTRIC SHOCK HAZARD

THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED

**WARNING**  
 ELECTRIC SHOCK HAZARD

IF GROUND FAULT IS INDICATED ALL NORMALLY GROUNDED CONDUCTORS MAY BE UNGROUNDED AND ENERGIZED

Utility Meter & MSP

**WARNING**  
 DUAL POWER SUPPLY

SOURCES: UTILITY GRID AND PV SOLAR ELECTRIC SYSTEM

AC combiner

**PV/AC AGGREGATE PANEL**

**DO NOT REMOVE, ADD OR RELOCATE ANY CIRCUITS FROM THIS PANEL**

DC J Box

**DC JUNCTION BOX**

**WARNING**  
 ELECTRIC SHOCK HAZARD

THE DC CONDUCTORS OF THIS PHOTOVOLTAIC SYSTEM ARE UNGROUNDED AND MAY BE ENERGIZED

**PHOTOVOLTAIC POWER SOURCE**

PV Output Conduit

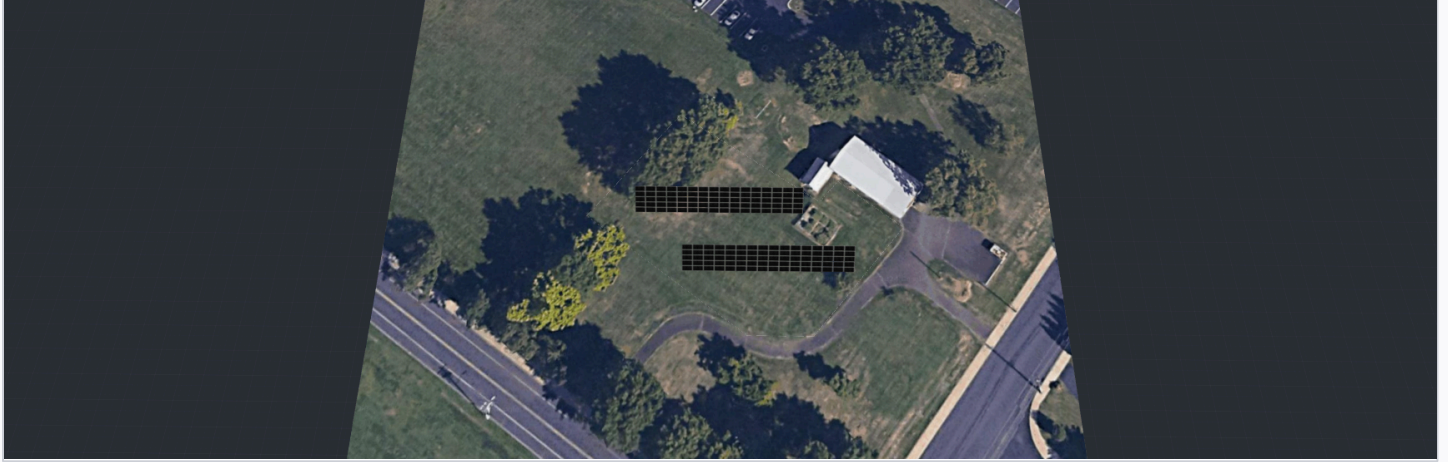
**WARNING: PHOTOVOLTAIC POWER SOURCE**



Title Zion Mennonite Church		
Author J King ICC134395 Powerstream Solar & Electric		
File		Document Labels
Revision 1.0	Date 3/27/24	Sheets 4

## ZION MENNONITE CHURCH

South Front Street 233, Souderton, Pennsylvania, 18964, United States | James Gunden | Mar 28, 2024



### SYSTEM OVERVIEW

 **160** PV modules

 **2** Inverters

 **80** Optimizers

### SIMULATION RESULTS



Installed DC Power

**88.00** kWp



Max Achieved AC Power

**67.30** kW



Annual Energy Production

**127.38** MWh



CO2 Emission Saved  
(Annually)

**90.06** t



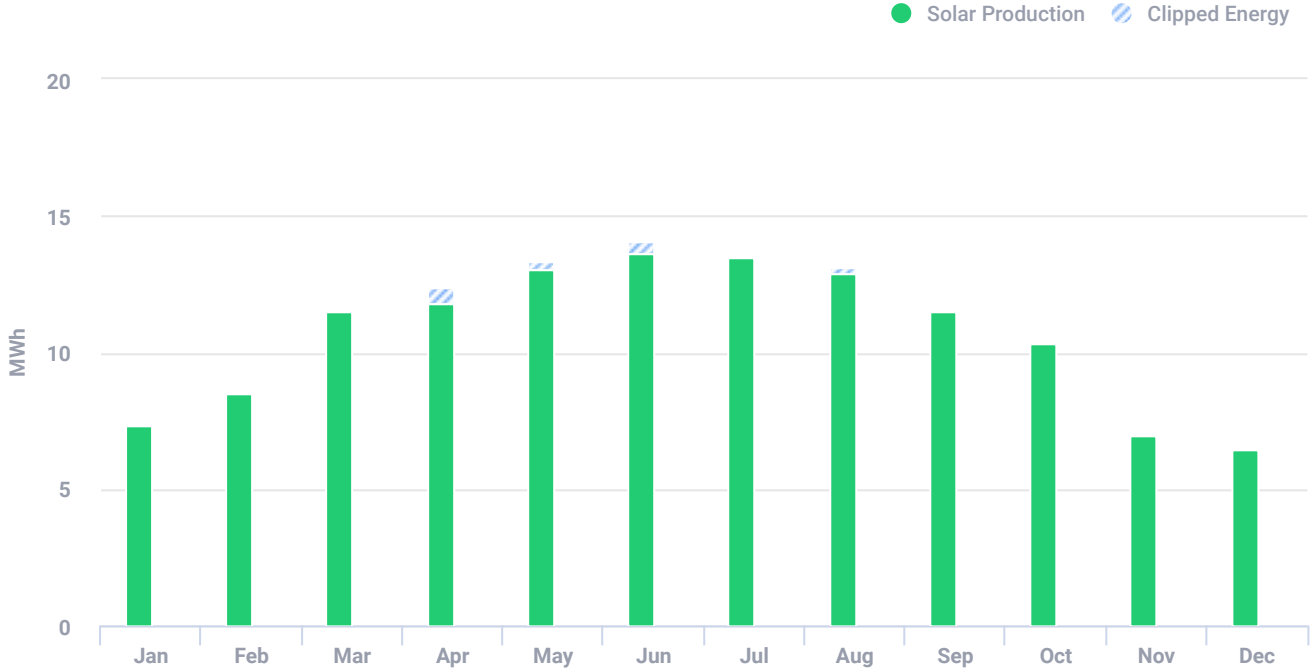
Equivalent Trees Planted  
(Annually)

**4,136**

### ZION MENNONITE CHURCH

South Front Street 233, Souderton, Pennsylvania, 18964, United States | James Gunden | Mar 28, 2024

### ESTIMATED MONTHLY ENERGY



Total clipped energy: 1.37%

### PV MODULES

# Module	Model	Peak power	Racking type	Orientation	Azimuth	Tilt
160	SEG SOLAR INC, SEG-550-BMA-TB (user-defined)	88 kWp			180°	24°
<b>Total:</b>	<b>160</b>	<b>88 kWp</b>				


### BILL OF MATERIALS (BOM)

Items	Part Number	Quantity	Price (\$)	Total (\$)
SE17.3K-US		1		
SE50K Synergy Manager		1		
S1200 (Ground mount only)		80		











### ZION MENNONITE CHURCH

South Front Street 233, Souderton, Pennsylvania, 18964, United States | James Gunden | Mar 28, 2024

### BILL OF MATERIALS (BOM) (CONTINUED)

Items	Part Number	Quantity	Price (\$)	Total (\$)
 SEG-550-BMA-TB		160		

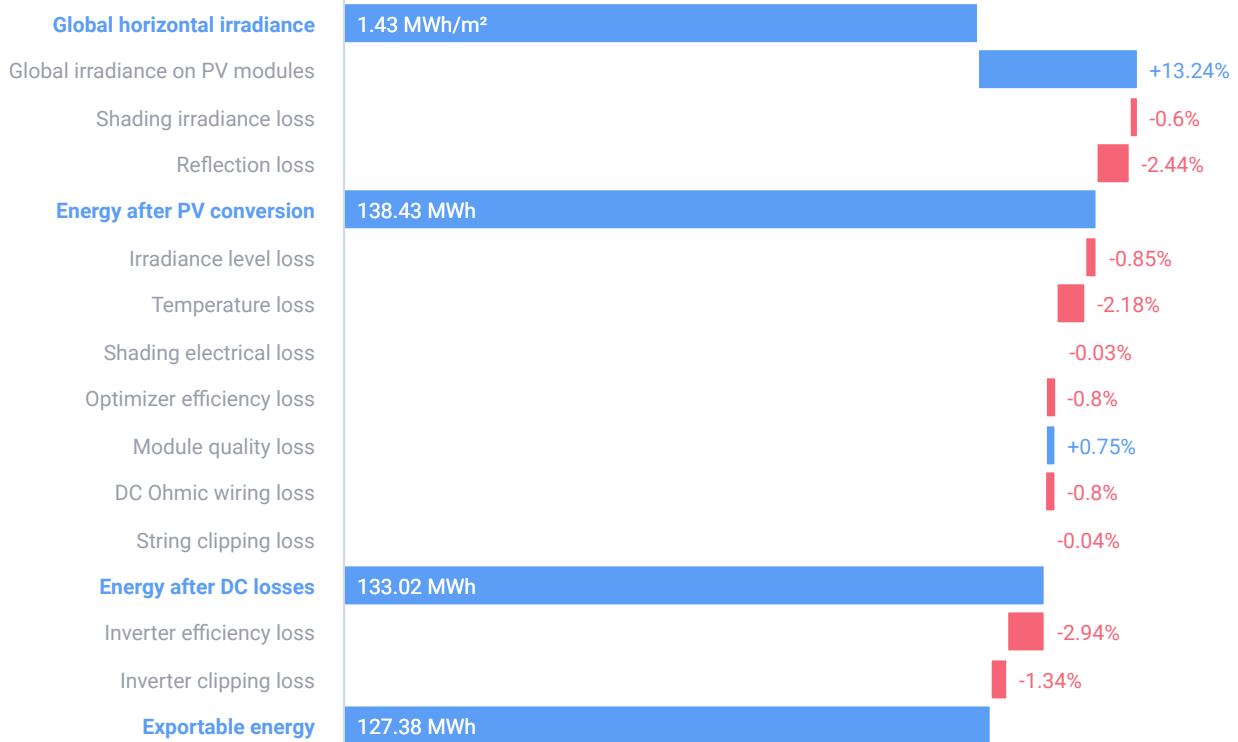
### ELECTRICAL DESIGN

Inverters & Storage	Strings per inverter	Optimizers per string	PV modules per string
 1 xSE50K Synergy ManagerCenter Unit 66kW   132% Oversizing	∞ 2 x strings	 10 x S1200 (Ground mount only) (2:1)	 20
	<b>Left Unit</b>		
	∞ 2 x strings	 10 x S1200 (Ground mount only) (2:1)	 20
	<b>Right Unit</b>		
	∞ 2 x strings	 10 x S1200 (Ground mount only) (2:1)	 20
 1 xSE17.3K-US 22kW   127% Oversizing	∞ 2 x strings	 10 x S1200 (Ground mount only) (2:1)	 20

## ZION MENNONITE CHURCH

South Front Street 233, Souderton, Pennsylvania, 18964, United States | James Gunden | Mar 28, 2024

### SYSTEM LOSS DIAGRAM



### SIMULATION PARAMETERS



#### LOCATION & GRID

Time zone	EDT (New_York)
Weather station	Doylestown (16.84 km away)
Station altitude	130 m
Station data source	Meteonorm 7.1
Grid	208V L-L, 120V L-N



#### LOSS FACTORS

Near shading	Enabled
Albedo	0.20
Bi-Facial Albedo	0.30
Soiling/Snow	0%
Incidence angle modifier (IAM), ASHRAE b0 param.	0.05
Thermal loss factor U <sub>c</sub> (const) Flush mount	20
Thermal loss factor U <sub>c</sub> (const) Tilted	29
LID loss factor	0%
System unavailability	0%



## ZION MENNONITE CHURCH

South Front Street 233, Souderton, Pennsylvania, 18964, United States | James Gunden | Mar 28, 2024

## NOTES

Ground Mount



1 SE17.3K-US 127%

- 10 x S1200 (4000d mount only)
- 10 x S1200 (4000d mount only)

2 SE50K Synergy Manager 132%

Center:

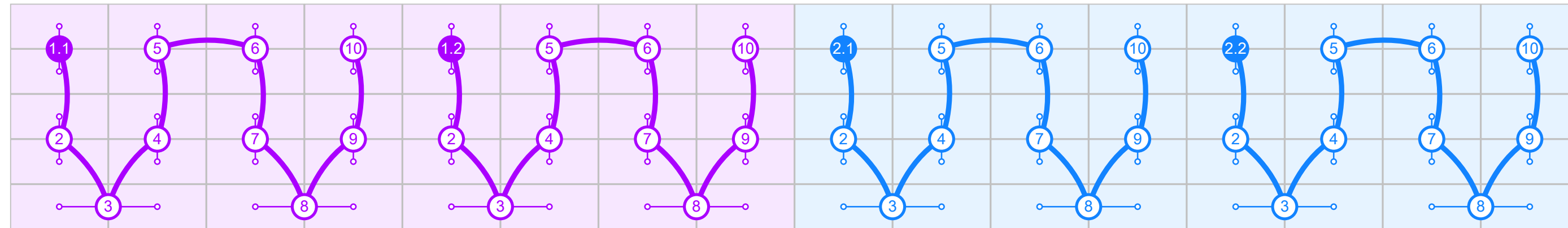
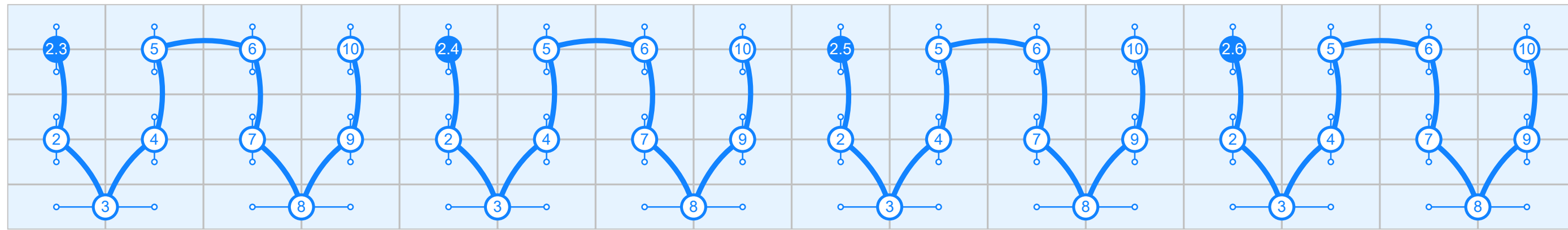
- 10 x S1200 (4000d mount only)
- 10 x S1200 (4000d mount only)

Left:

- 10 x S1200 (4000d mount only)
- 10 x S1200 (4000d mount only)

Right:

- 10 x S1200 (4000d mount only)
- 10 x S1200 (4000d mount only)



1

2

3

4

5

6

A

B

C

D

E

F

G

H

## Three Phase Inverters for the 120/208V Grid For North America

SE10KUS / SE17.3KUS



### The best choice for SolarEdge enabled systems

- / Specifically designed to work with power optimizers
- / Quick and easy inverter commissioning directly from a smartphone using SolarEdge SetApp
- / Fixed voltage inverter for superior efficiency and longer strings
- / Built-in type 2 DC and AC Surge Protection, to better withstand lightning events
- / Small, lightest in its class, and easy to install outdoors or indoors on provided bracket
- / Integrated arc fault protection and rapid shutdown for NEC 2014, 2017, and 2020, per article 690.11 and 690.12
- / Built-in module-level monitoring with Ethernet, wireless or cellular communication for full system visibility
- / Integrated Safety Switch
- / UL1741 SA and SB certified, for CPUC Rule 21 grid compliance

# / Three Phase Inverters for the 120/208V Grid<sup>(1)</sup>

## For North America

### SE10KUS / SE17.3KUS

Model Number	SE10KUS	SE17.3KUS	
Applicable to inverters with part number	SEXK-USX2IXXX		
<b>OUTPUT</b>			
Rated AC Power Output	10000	17300	W
Maximum Apparent AC Output Power	10000	17300	VA
AC Output Line Connections	3W + PE, 4W + PE		
AC Output Voltage Minimum-Nominal-Maximum <sup>(2)</sup> (L-N)	105 – 120 – 132.5		
AC Output Voltage Minimum-Nominal-Maximum <sup>(2)</sup> (L-L)	183 – 208 – 229		
AC Frequency Minimum-Nominal-Maximum <sup>(2)</sup>	59.3 – 60 – 60.5		
Continuous Output Current (per Phase)	27.8	48.25	Aac
GFDI Threshold	1		
Utility Monitoring, Islanding Protection, Country Configurable Set Points	Yes		
THD	≤ 3		
Power Factor Range	+/- 0.85 to 1		
<b>INPUT</b>			
Maximum DC Power (Module STC)	17500	30275	W
Transformer-less, Ungrounded	Yes		
Maximum Input Voltage DC+ to DC-	600		
Operating Voltage Range	370 – 600		
Maximum Input Current	27.8	48.25	Adc
Maximum Input Short Circuit Current	55		
Reverse-Polarity Protection	Yes		
Ground-Fault Isolation Detection	167kΩ Sensitivity <sup>(3)</sup>		
CEC Weighted Efficiency	97	97.5	%
Night-time Power Consumption	< 4		
<b>ADDITIONAL FEATURES</b>			
Supported Communication Interfaces	2 x RS485, Ethernet, Cellular (optional)		
Inverter Commissioning	With the SetApp mobile application using built-in Wi-Fi access point for local connection		
Rapid Shutdown	NEC2014, NEC2017 and NEC2020 compliant/certified		
RS485 Surge Protection Plug-in	Supplied with the inverter, Built-in		
AC, DC Surge Protection	Type II, field replaceable, Built-in		
DC Fuses (Single Pole)	25A, Built-in		
Smart Energy Management	Export Limitation		
<b>DC SAFETY SWITCH</b>			
DC Disconnect	Integrated		
<b>STANDARD COMPLIANCE</b>			
Safety	UL1741, UL1741 SA, UL1741 SB, UL1699B, CSA C22.2, Canadian AFCI according to T.I.L. M-07		
Grid Connection Standards	IEEE1547-2018, Rule 21, Rule 14 (HI)		
Emissions	FCC part15 class A		
<b>INSTALLATION SPECIFICATIONS</b>			
AC Output Conduit size /AWG range	¾" or 1" / 6 - 10 AWG		
DC Input Conduit size / AWG range	¾" or 1" / 6 - 12 AWG		
Number of DC inputs pairs	4		
Dimensions with Safety Switch (H x W x D)	31.8 x 12.5 x 11.8 / 808 x 317 x 300		
Weight with Safety Switch	78.2 / 35.5		
Cooling	Fans (user replaceable)		
Noise	< 62		
Operating Temperature Range	-40 to +140 / -40 to +60(4)		
Protection Rating	NEMA 3R		
Mounting	Bracket provided		

(1) For 277/480V inverters refer to the [Three Phase Inverters for the 277/480V Grid for North America datasheet](#).

(2) For other regional settings please contact SolarEdge support.

(3) Where permitted by local regulations.

(4) For power de-rating information refer to the [Temperature De-rating - Technical Note \(North America\)](#).

# Three Phase Inverter with Synergy Technology

For the 208V Grid for North America

SE50KUS



## Powered by unique pre-commissioning process for rapid system installation

- / Pre-commissioning feature for automated validation of system components and wiring during the site installation process and prior to grid connection
- / Easy 2-person installation with lightweight, modular design (each inverter consists of 3 Synergy units and one Synergy Manager)
- / Independent operation of each Synergy unit enables higher uptime and easy serviceability
- / Built-in thermal sensors detect faulty wiring ensuring enhanced protection and safety
- / Built-in arc fault protection and rapid shutdown
- / Built-in PID mitigation for maximized system performance
- / Monitored\* and field-replaceable surge protection devices, to better withstand surges caused by lightning or other events
- / Built-in module-level monitoring with Ethernet or cellular communication for full system visibility

\*Applicable only for DC and AC SPDs

# / Three Phase Inverter with Synergy Technology

## For the 208V Grid for North America

SE50KUS

Applicable to inverter with Part Numbers	SExxK-US02Ixxxx	
	SE50KUS	
<b>OUTPUT</b>		
Rated AC Active Output Power	50000	W
Maximum AC Apparent Output Power	50000	VA
AC Output Line Connections	3W + PE, 4W + PE	
Supported Grids	WYE: TN-C, TN-S, TN-C-S, TT, IT; Delta: IT	
AC Output Voltage Minimum-Nominal-Maximum <sup>(1)</sup> (L-N)	105-120-132.5	Vac
AC Output Voltage Minimum-Nominal-Maximum <sup>(1)</sup> (L-L)	183-208-229	Vac
AC Frequency Min-Nom-Max <sup>(1)</sup>	59.5 - 60 - 60.5	Hz
Maximum Continuous Output Current (per Phase, PF=1)	139.5	Aac
GFDI Threshold	1	A
Utility Monitoring, Islanding Protection, Configurable Power Factor, Country Configurable Thresholds	Yes	
Total Harmonic Distortion	≤ 3	%
Power Factor Range	+/-0.2 to 1	
<b>INPUT</b>		
Maximum DC Power (Module STC) Inverter / Synergy Unit	87500 / 29165	W
Transformer-less, Ungrounded	Yes	
Maximum Input Voltage DC+ to DC-	600	Vdc
Operating Voltage Range	370 - 600	Vdc
Maximum Input Current	3 x 46.5	Adc
Reverse-Polarity Protection	Yes	
Ground-Fault Isolation Detection	167kΩ sensitivity per Synergy Unit <sup>(2)</sup>	
CEC Weighted Efficiency	97	%
Nighttime Power Consumption	< 12	W
<b>ADDITIONAL FEATURES</b>		
Supported Communication Interfaces <sup>(3)</sup>	2x RS485, Ethernet, Wi-Fi (optional), Cellular (optional)	
Smart Energy Management	Export Limitation	
Inverter Commissioning	With the SetApp mobile application using built-in Wi-Fi access point for local connection	
Arc Fault Protection	Built-in, User Configurable (According to UL1699B)	
Photovoltaic Rapid Shutdown System	NEC 2014, 2017 and 2020, Built-in	
PID Rectifier	Nighttime, built-in	
RS485 Surge Protection (ports 1+2)	Type II, field replaceable, integrated	
AC, DC Surge Protection	Type II, field replaceable, integrated	
DC Fuses (Single Pole)	25A, integrated	
<b>DC SAFETY SWITCH</b>		
DC Disconnect	Built-in	
<b>STANDARD COMPLIANCE</b>		
Safety	UL1699B, UL1741, UL1741 SA, UL1998, CSA C22.2#107.1, Canadian AFCI according to T.I.L. M-07	
Grid Connection Standards	IEEE 1547, Rule 21, Rule 14 (H)	
Emissions	FCC part 15 class A	

(1) For other regional settings please contact SolarEdge support

(2) Where permitted by local regulations

(3) For specifications of the optional communication options, visit <https://www.solaredge.com/products/communication> or the Resource Library webpage: <https://www.solaredge.com/downloads/#>, to download the relevant product datasheet

# / Three Phase Inverter with Synergy Technology

## For the 208V Grid for North America

### SE50KUS

Applicable to inverter with Part Numbers	SExxK-US02Ixxxx	
	SE50KUS	
<b>INSTALLATION SPECIFICATIONS</b>		
Number of Synergy Units per Inverter	3	
AC Max Conduit Size	2 ½"	in
Max AWG Line / PE	4/0 / 1/0	
DC Max Conduit Size	1 x 3" ; 2 x 2"	in
DC Input Inverter / Synergy Unit	12 / 4 pairs; 6-12 AWG	
Dimensions (H x W x D)	Synergy Unit: 22 x 12.9 x 10.75 / 558 x 328 x 273 Synergy Manager: 14.17 x 22.4 x 11.6 / 360 x 560 x 295	in / mm
Weight	Synergy Unit: 70.4 / 32 Synergy Manager: 39.6 / 18	lb / kg
Operating Temperature Range	-40 to +140 / -40 to +60 <sup>(4)</sup>	°F / °C
Cooling	Fan (user replaceable)	
Noise	< 67	dBA
Protection Rating	NEMA 3R	
Mounting	Brackets provided	

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

---

# Power Optimizer

S1000 / S1200



POWER OPTIMIZERS

## SolarEdge's most advanced, cost-effective Power Optimizer for commercial and large field installations

### / Greater Energy Yields

- / High efficiency (99.5%) with module-level MPPT, for maximized system energy production and revenue, and fast project ROI
- / Supports high power and bifacial PV modules, and high string current for more power per string

### / Maximum Protection with Built-In Safety

- / Designed to automatically reduce high DC voltage to touch-safe levels, upon grid/inverter shutdown, with SafeDC™
- / Includes SolarEdge Sense Connect, allowing continuous monitoring to detect overheating due to installation issues or connector-level wear and tear

### / Lower BoS Costs

- / Flexible system design enables maximum space utilization and up to 2x longer string lengths, 50% less cables, fuses and combiner boxes
- / Supports connection of two PV modules in series with easy cable management and fast installation times

### / Simpler O&M

- / Module-level system monitoring enabling pinpointed fault detection and remote, time-saving troubleshooting



# / Power Optimizer

## S1000 / S1200

	S1000	S1200	Units
<b>INPUT</b>			
Rated Input DC Power <sup>(1)</sup>	1000	1200	W
Absolute Maximum Input Voltage (Voc)	125		Vdc
MPPT Operating Range	12.5 – 105		Vdc
Maximum Short Circuit Current (Isc) of Connected PV Module	15		Adc
Maximum Efficiency	99.5		%
Weighted Efficiency	98.8		%
Overvoltage Category	II		
<b>OUTPUT DURING OPERATION</b>			
Maximum Output Current	18	20	Adc
Maximum Output Voltage	80		Vdc
<b>OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)</b>			
Safety Output Voltage per Power Optimizer	1		Vdc
<b>STANDARD COMPLIANCE</b>			
EMC	FCC Part 15, IEC 61000-6-2, and IEC 61000-6-3 – Class B, EN 55011		
Safety	IEC62109-1 (class II safety)		
Material	UL94 V-0, UV Resistant		
RoHS	Yes		
Fire Safety	VDE-AR-E 2100-712:2013-05		
<b>INSTALLATION SPECIFICATIONS</b>			
Maximum Allowed System Voltage	1000		Vdc
Dimensions (W x L x H)	129 x 165 x 52 / 5.08 x 6.49 x 2.047	129 x 165 x 59 / 5.08 x 6.49 x 2.32	mm / in
Weight (including cables)	1064 / 2.3	1106 / 2.4	gr / lb
Input Connector	MC4 <sup>(2)</sup>		
Input Wire Length	Short Input: 0.1 / 0.32 Long Input: 1.3 / 4.26 <sup>(3)</sup>	Short Input: 0.1 / 0.32 Long Input: 1.6 / 5.24 <sup>(3)</sup>	m / ft
Output Connector	MC4		
Output Wire Length <sup>(4)</sup>	Option 1: (+) 4.7 (-) 0.10 / (+) 15.41 (-) 0.32 Option 2: (+) 2.7 (-) 0.10 / (+) 8.8 (-) 0.32	Option 1: (+) 5.3 (-) 0.10 / (+) 17.38 (-) 0.32 Option 2: (+) 2.7 (-) 0.10 / (+) 8.8 (-) 0.32	m / ft
Operating Temperature Range <sup>(5)</sup>	-40 to +85 / -40 to +185		°C / °F
Protection Rating	IP68 / NEMA6P		
Relative Humidity	0 – 100		%

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

(2) For other connector types please contact SolarEdge.

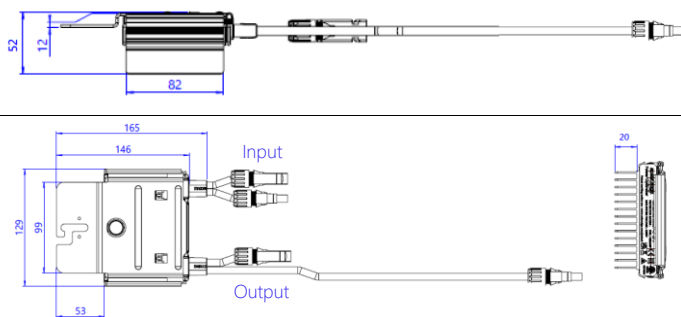
(3) For S-Series models with long input cables (1.3m / 4.26ft or 1.6m / 5.24ft), the Sense Connect feature is only enabled on the output cable connectors.

(4) Option 1 best fits when modules are placed in landscape orientation or in portrait orientation with power optimizers connected in leapfrog wiring method.

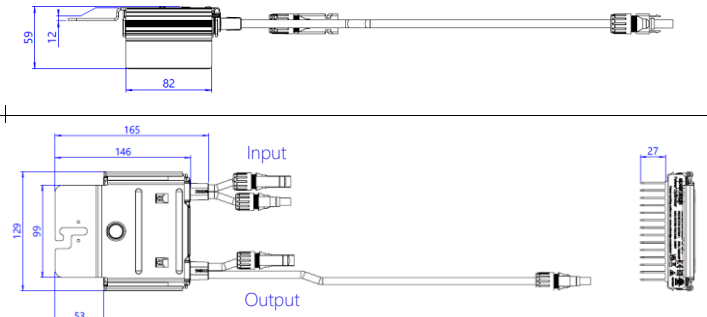
Option 2 best fits when modules are placed in portrait orientation.

(5) For ambient temperatures above +65°C / +149°F power de-rating is applied.

S1000 Mechanical Drawing



S1200 Mechanical Drawing



\* When installing SolarEdge power optimizers, maintaining clearance is required. Refer to the [Power Optimizer Clearance Application Note](#) for more details.

# / Power Optimizer

## S1000

PV System Design Using a SolarEdge Inverter <sup>(1)(2)(3)(4)</sup>		230/400V Grid SE16K, SE17K, SE25K*	230/400V Grid SE27.6K*	230/400V Grid SE30K*	230/400V Grid SE33.3K*	277/480V Grid SE40K*	Units
Compatible Power Optimizers		S1000					
Minimum String Length	Power Optimizers	14	14	15	14	15	
	PV Modules	27	27	29	27	29	
Maximum String Length	Power Optimizers	30	30	30	30	30	
	PV Modules	60	60	60	60	60	
Maximum Continuous Power per String [W]		13,500	13,950	15,300	13,500	15,300	
Maximum Allowed Connected Power per String <sup>(4)</sup>		1 string – 15,750	1 string – 16,200	1 string – 17,550	2 strings – 15,750	1 – 2 strings – 17,550	W
		2 strings or more – 18,500	2 strings or more – 18,950	2 strings or more – 20,300	3 strings or more – 18,500	3 strings or more – 20,300	
Parallel Strings of Different Lengths or Orientations		Yes					
Maximum Difference in Number of Power Optimizers Allowed Between the Shortest and Longest String Connected to the Same Inverter Unit		5 Power Optimizers					

\*The same rules apply for Synergy units of equivalent power ratings, that are part of the modular Synergy Technology inverter.

(1) S1000 cannot be mixed with S1200 in the same string. For P-series compatibility please refer to the [SolarEdge Power Optimizer Inter-Compatibility Technical Note](#).

(2) For each string, a Power Optimizer may be connected to a single PV module if:

- 1) Each Power Optimizer is connected to a single PV module (the entire string has a 1:1 configuration).
- 2) It is the only Power Optimizer connected to a single PV module.

(3) For SE16K and above, the minimum STC DC connected power should be 11KW.

(4) To connect more STC power per string, design your project using [SolarEdge Designer](#).

## S1200

PV System Design Using a SolarEdge Inverter <sup>(5)(6)(7)(8)</sup>		230/400V Grid SE16K, SE17K, SE25K*	230/400V Grid SE27.6K*	230/400V Grid SE30K*	230/400V Grid SE33.3K <sup>(9)</sup>	277/480V Grid SE40K*	Units
Compatible Power Optimizers		S1200					
Minimum String Length	Power Optimizers	14	14	15	15	15	
	PV Modules	27	27	29	29	29	
Maximum String Length	Power Optimizers	30	30	30	30	30	
	PV Modules	60	60	60	60	60	
Maximum Continuous Power per String [W]		15,000	15,500	17,000	17,000	17,000	
Maximum Allowed Connected Power per String <sup>(6)</sup>		1 string – 17,250	1 string – 17,750	1 string – 19,250	1 string – 19,250	1 – 2 strings – 19,250	W
		2 strings or more – 20,000	2 strings or more – 20,500	2 strings or more – 23,000	2 strings or more – 23,000	3 strings or more – 23,000	
Parallel Strings of Different Lengths or Orientations		Yes					
Maximum Difference in Number of Power Optimizers Allowed Between the Shortest and Longest String Connected to the Same Inverter Unit		5 Power Optimizers					

\*The same rules apply for Synergy units of equivalent power ratings, that are part of the modular Synergy Technology inverter.

(5) S1200 cannot be mixed with any other power optimizer in the same string.

(6) For each string, a Power Optimizer may be connected to a single PV module if:

- 1) Each Power Optimizer is connected to a single PV module (the entire string has a 1:1 configuration).
- 2) It is the only Power Optimizer connected to a single PV module.

(7) For SE16K and above, the minimum STC DC connected power should be 11KW.

(8) To connect more STC power per string, design your project using [SolarEdge Designer](#).

(9) To connect an S1200 power optimizer with an SE33K inverter, you must toggle the Fixed String Voltage from 750Vdc to 850Vdc via SolarEdge SetApp. For details, see [this application note](#).

SolarEdge is a global leader in smart energy technology. By leveraging world-class engineering capabilities and with a relentless focus on innovation, SolarEdge creates smart energy solutions that power our lives and drive future progress.

SolarEdge developed an intelligent inverter solution that changed the way power is harvested and managed in photovoltaic (PV) systems. The SolarEdge DC optimized inverter maximizes power generation while lowering the cost of energy produced by the PV system.

Continuing to advance smart energy, SolarEdge addresses a broad range of energy market segments through its PV, storage, EV charging, UPS, and grid services solutions.

-  SolarEdge
-  @SolarEdgePV
-  @SolarEdgePV
-  SolarEdgePV
-  SolarEdge
-  [www.solaredge.com/corporate/contact](http://www.solaredge.com/corporate/contact)

**[solaredge.com](http://solaredge.com)**

© SolarEdge Technologies, Ltd. All rights reserved. SOLAREEDGE, the SolarEdge logo, OPTIMIZED BY SOLAREEDGE are trademarks or registered trademarks of SolarEdge Technologies, Inc. All other trademarks mentioned herein are trademarks of their respective owners. Date: February 7, 2023 DS-000122-EU Subject to change without notice.

Cautionary Note Regarding Market Data and Industry Forecasts: This brochure may contain market data and industry forecasts from certain third-party sources. This information is based on industry surveys and the preparer's expertise in the industry and there can be no assurance that any such market data is accurate or that any such industry forecasts will be achieved. Although we have not independently verified the accuracy of such market data and industry forecasts, we believe that the market data is reliable and that the industry forecasts are reasonable.

**CE RoHS**

**solar**edge

# YUKON Series

Half-Cell  
Transparent Backsheet Module

**540-555W**  
Module Power Output

**21.48%**  
Max Efficiency



## Key Features



High module conversion efficiency



Better temperature coefficient



Super multi busbar technology



Low attenuation long warranty



Superior load capacity



Higher bifacially

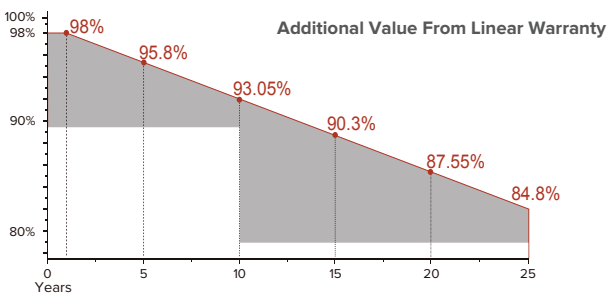


USA based liability insurance



Houston, Texas based company

## Warranty



**15** <Years> Guarantee on product material and workmanship

**25** <Years> Linear power output warranty

## Product Certification

IEC61215:2016; IEC 61730:2016; UL1703; UL61730/ETL/CEC

IEC62804

PID

IEC61701

Salt Mist

IEC62716

Ammonia Resistance

IEC60068

Dust and Sand

IEC61215

Hailstone

Fire Type (UL61730):Type1

ISO14001:2015; ISO9001:2015; ISO45001:2018



## About SEG Solar

SEG Solar is a leading manufacturer of high-performance solar panels for residential, commercial, and utility applications. The company, headquartered in Houston, Texas, is committed to providing cost-effective and reliable solar solutions that help customers reduce their energy costs and carbon footprint.



Download Datasheet

### Electrical Characteristics

Module Type	SEG-540-BMA-TB			SEG-545-BMA-TB			SEG-550-BMA-TB			SEG-555-BMA-TB		
	Front STC	Front NOCT	Back STC	Front STC	Front NOCT	Back STC	Front STC	Front NOCT	Back STC	Front STC	Front NOCT	Back STC
Maximum Power -Pmp(W)	540	406	378	545	409	382	550	414	385	555	418	389
Open Circuit Voltage -Voc(V)	49.50	46.18	49.48	49.60	46.32	49.58	49.70	46.40	49.68	49.80	46.47	49.78
Short Circuit Current -Isc(A)	13.81	11.16	9.74	13.90	11.23	9.80	14.00	11.32	9.87	14.10	11.40	9.94
Maximum Power Voltage -Vmp(V)	41.55	38.39	41.61	41.80	38.41	41.86	42.05	38.58	42.10	42.31	38.75	42.35
Maximum Power Current -Imp(A)	13.00	10.59	9.09	13.04	10.65	9.13	13.08	10.73	9.15	13.12	10.79	9.19
Module Efficiency STC-ηm(%)	20.90			21.10			21.29			21.48		
Power Tolerance(W)							(0, +3%)					
Maximum System Voltage							1500V DC					
Maximum Series Fuse Rating							25 A					

 STC: Irradiance 1000 W/m<sup>2</sup> module temperature 25°C AM=1.5

 NOCT: Irradiance 800W/m<sup>2</sup> ambient temperature 20°C module temperature 45°C wind speed: 1m/s

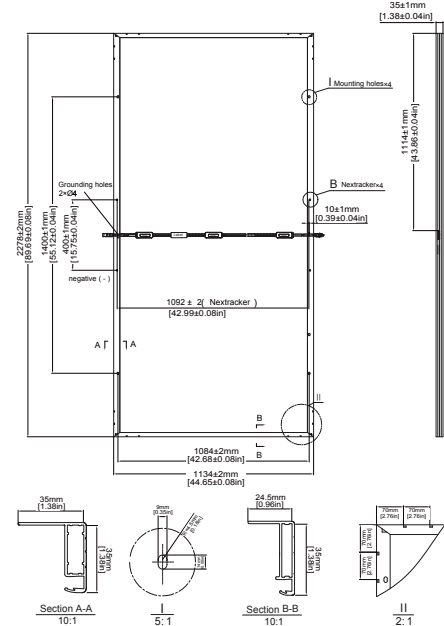
Power measurement tolerance: +/-3%

### Mechanical Specifications

External Dimension	2278 x 1134 x 35 mm
Weight	27.0 kg
Solar Cells	PERC Mono 182 x 91mm(144 pcs)
Front Glass	3.2 / mm AR coating tempered glass / low iron
Frame	Anodized aluminium alloy
Junction Box	IP68 / 3 diodes
Connector Type	QC4.10
Cable Type / Length	12 AWG PV Wire (UL) /1200 mm
Mechanical Load(Front)	5400 Pa / 113 psf*
Mechanical Load(Rear)	3600 Pa / 75 psf*

\*Refer to SEG installation Manual for details

### Technical Drawing



\*Refer to SEG installation Manual for details

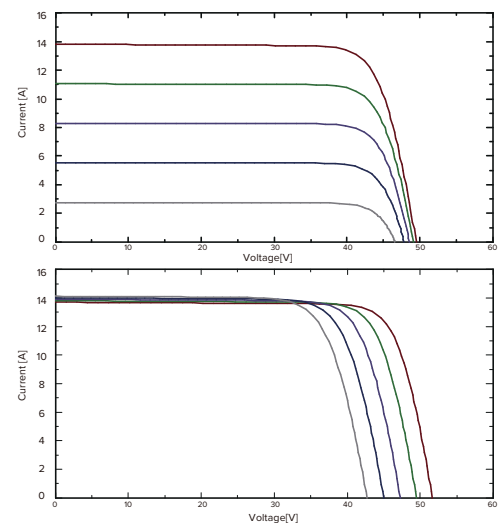
### Packing Configuration

Container	20'GP	40'HQ
Pieces per Pallet	31	31
Pallets per Container	4	20
Pieces per Container	124	620

### Temperature Characteristics

Pmax Temperature Coefficient	-0.35 %/°C
Voc Temperature Coefficient	-0.27 %/°C
Isc Temperature Coefficient	+0.05 %/°C
Operating Temperature	-40~+85 °C
Nominal Operating Cell Temperature (NOCT)	45±2 °C

### I-V Curve





# Solar Foundations<sup>®</sup> USA

*Innovative. Adaptable. Grounded.*



SFUSA<sup>®</sup>

**Ground Mount**

# Adaptable Ground Screw Fixed Tilt System

The SFUSA® Ground Mount system is the optimal solution for residential and light commercial solar projects. By custom designing and manufacturing components in-house, Solar Foundations' structure fits and functions together seamlessly, installs in far less time and with greater strength. The highest quality materials such as high-grade steel fully galvanized in accordance with ASTM standards and high-strength aluminum alloys for our panel support rails are utilized for long-term durability. Designed to withstand high snow and wind areas, the UL 2703 classified system has an expected lifespan that exceeds multiple panel lifecycles. Thus, Solar Foundations' product maximizes the residual investment of your ground mount structure.

## Features

Solar Foundations' patented rail design offers a simple connection detail between the panel support rail and the horizontal support beams.

The patented telescopic design of the SFUSA Wind Brace allows quick and easily adaptable length changes to match installation conditions where significant adjustability is required.

A two-man crew can typically install up to about a 25kW residential structure in a single day.

SFUSA has developed processes and equipment that permits the installation of our patent pending ground screws in any soil conditions including solid rock.

Our foundations feature wider spans between support columns and stronger members. We engineered our system to obtain a better balance between all of the system components, resulting in less ground penetrations, a lower installed cost and has allowed us to offer further cost optimizations and array configurations that are not typically available in the industry.



- ✓ Allows for mounting panels in four-, five- or six-high in landscape orientation and can be adapted to custom configurations
- ✓ Durable design enables any wind speed and snow load
- ✓ 0° to 40° tilt with multiple inter-row spacing options
- ✓ Compatible with a wide range of modules
- ✓ Pile verification report available after the installation has been completed
- ✓ 25-year guarantee against failure



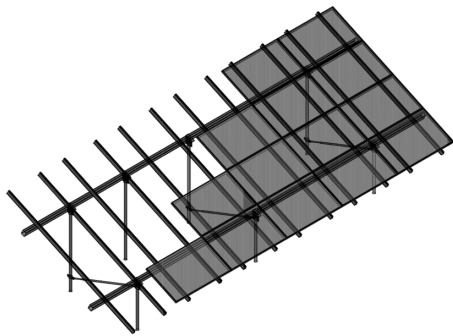
SFUSA®

Ground Mount

Let us simplify your **ground mount** structure process.

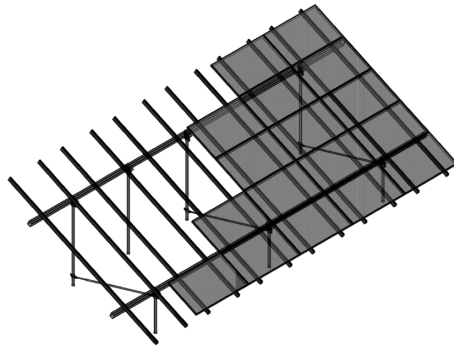
**FT4L**

**Fixed Tilt 4 Landscape**



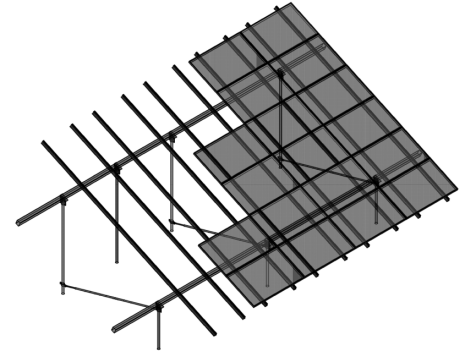
**FT5L**

**Fixed Tilt 5 Landscape**



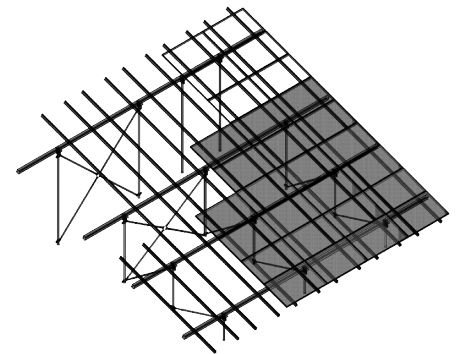
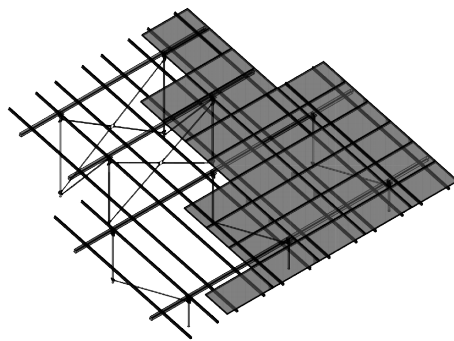
**FT6L**

**Fixed Tilt 6 Landscape**



**Custom**

SFUSA® has the ability to come up with creative structures and products outside of our standard systems for unique situations.



<b>Materials</b>	Hot-dipped galvanized steel, aluminum, stainless-steel mounting hardware
<b>Tilt Angle</b>	0° - 40°
<b>Module Orientation</b>	Landscape
<b>Finishes</b>	Galvanized
<b>Foundation Options</b>	Ground Screw - All soils including rock drilling
<b>Grounding</b>	Integrated or WEEB Bonding
<b>Maximum Grade of Terrain</b>	15°
<b>Design Services</b>	Signed & sealed structural drawings
<b>Certifications</b>	UL 2703
<b>Warranty</b>	25 years
<b>Installation Services</b>	Material, foundations, racking

**LESS PILES**  
LARGER SPANS

**UP TO 15°**  
TERRAIN SLOPES



We're more than just a racking company.

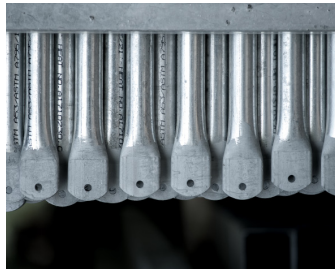
## Substructure Assembly

### Horizontal Support Beam



We provide maximum support for our structure by utilizing high yield strength hollow structural steel sections on our racking systems.

### Diagonal Wind Brace and Insert



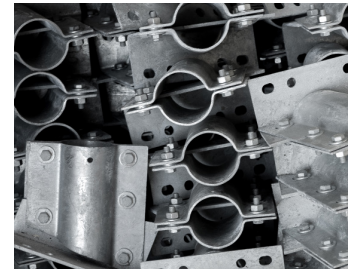
Our patented telescopic design allows quick and easily adaptable length changes to match installation conditions.

### Diagonal Wind Brace Column Connector



SolarFoundations' hot-dipped galvanized custom Wind Brace Column Connectors fasten the Diagonal Wind Brace to a vertical column.

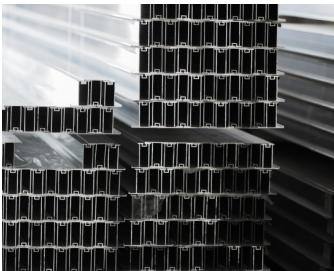
### Column Caps



Our unique design allows a straightforward connection to the horizontal steel support beam.

## Racking Assembly

### Ground Mount Rail



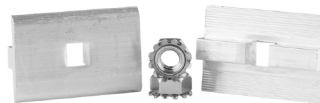
Solar Foundations' patented rail design offers a simple connection detail between the panel support rail and the horizontal support beams, allowing 6 modules per column in landscape orientation.

### Module End Clamp



Our end clamp design securely fastens the top and bottom edges of a column of solar panels to the SF Rail.

### Module Mid Clamp



The mid clamp fastens two adjoining solar panels in a column of solar panels to the SF Rail. Our sleek design with multiple serrations increases the holding power of the modules to our SF Rails.

### Grounding



Our UL 2703 Certification encompasses the rail to beam and beam to pile connections, permitting the use of a single grounding lug for the entire racking system.

Contact us at [info@solarfoundationsusa.com](mailto:info@solarfoundationsusa.com) or (855) 738-7200.