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

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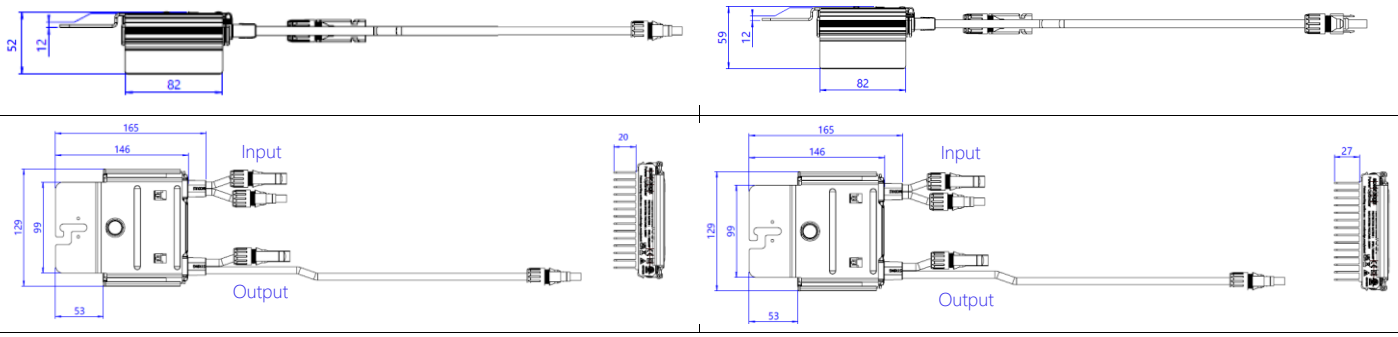
/ Power Optimizer

S1000 / S1200

	S1000	S1200	Units
INPUT			
Rated Input DC Power[1]	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		
OUTPUT DURING OPERATION			
Maximum Output Current	18	20	Adc
Maximum Output Voltage	80		Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF)			
Safety Output Voltage per Power Optimizer	1		Vdc
STANDARD COMPLIANCE			
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		
INSTALLATION SPECIFICATIONS			
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[2]		
Input Wire Length	Short Input: 0.1 / 0.32 Long Input: 1.3 / 4.26[3]	Short Input: 0.1 / 0.32 Long Input: 1.6 / 5.24[3]	m / ft
Output Connector	MC4		
Output Wire Length[4]	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[5]	-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[1][2][3][4]		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	W
Maximum Allowed Connected Power per String[4]		1 string – 15,750	1 string – 16,200	1 string – 17,550	2 strings – 15,750	1 – 2 strings – 17,550	
		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[5][6][7][8]		230/400V Grid SE16K, SE17K, SE25K*	230/400V Grid SE27.6K*	230/400V Grid SE30K*	230/400V Grid SE33.3K*[9]	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	W
Maximum Allowed Connected Power per String[8]		1 string – 17,250	1 string – 17,750	1 string – 19,250	1 string – 19,250	1 – 2 strings – 19,250	
		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.

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CE RoHS

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Power Optimizer

For Europe

S1500



POWER OPTIMIZER

SolarEdge's most powerful and compact 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 up to 700 W high power and 20 A high current modules, including bifacial and G12 modules
- **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, for connector-level monitoring during production to detect overheating due to installation issues or wear and tear
- **Lower BoS Costs with Flexible Design**
  - More power with up to 30.4 kW per string for optimal usage of the installation area, enabling up to 2x longer and fewer strings, and 50% fewer cables, fuses, and combiner boxes
  - Compact size and slimmer profile for simple cost-effective installations, especially in challenging spaces
  - Connects to two PV modules in series
- **Simpler O&M**
  - Module-level system monitoring enabling pinpointed fault detection
  - Remote, time-saving troubleshooting for fewer truck rolls and less time on-site

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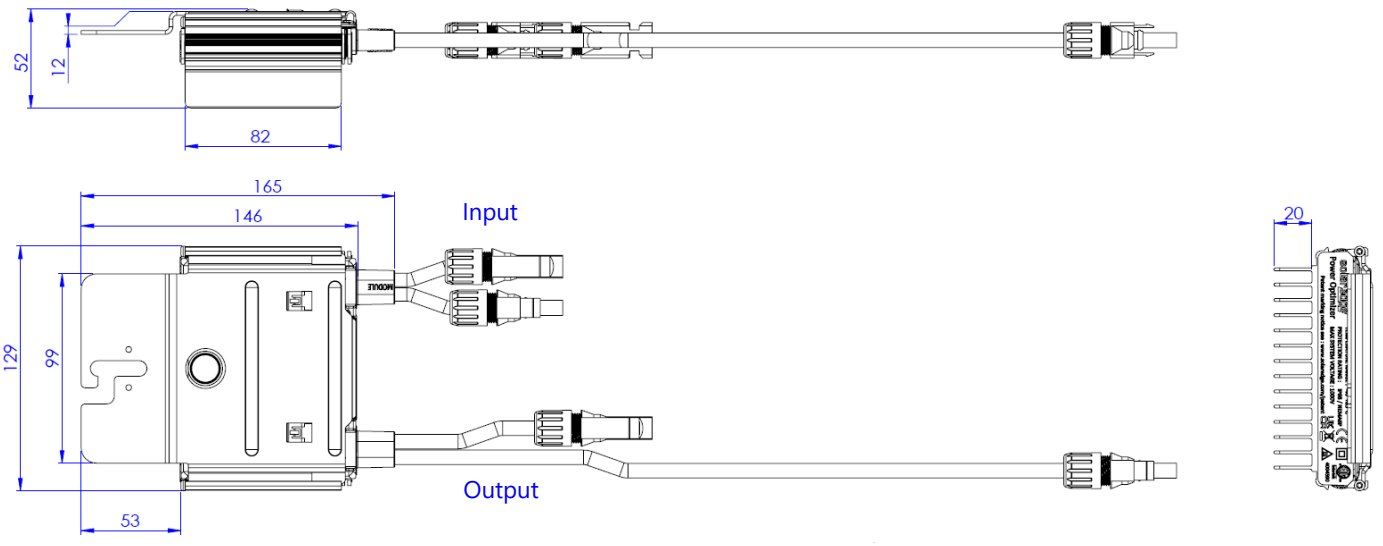
/ Power Optimizer

S1500

	S1500	Unit
INPUT[1]		
Rated Input DC Power[2]	1500	W
Absolute Maximum Input Voltage (Voc)	125	Vdc
MPPT Operating Range	12.5 – 105	Vdc
Maximum Continuous Input Current	20	Adc
Maximum Short Circuit Current (Isc) of Connected PV Module[3]	20	Adc
Maximum Efficiency	99.5	%
Weighted Efficiency	98.8	%
Overvoltage Category	II	
OUTPUT DURING OPERATION		
Maximum Output Current	24	Adc
Maximum Output Voltage	80	Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR OFF)		
Safety Output Voltage per Power Optimizer	1 ± 0.1	Vdc
STANDARD COMPLIANCE		
EMC	FCC Part 15, IEC 61000-6-2, and IEC 61000-6-3 - Class B, EN 55011[4]	
Safety	IEC 62109-1 (class II safety)	
Material	UL 94 V-0, UV Resistant	
RoHS	Yes	
Fire Safety	VDE-AR-E 2100-712:2013-05	
INSTALLATION SPECIFICATIONS		
Compatible SolarEdge Inverters	Commercial inverters without integrated DC fuses[5]	
Maximum Allowed System Voltage	1000	Vdc
Dimensions (W x L x H)	129 x 165 x 52 / 5.08 x 6.49 x 2.04	mm / in
Weight	1087 / 2.39	gr / lb
Input Connector	MC4[6]	
Input Wire Length	Short Input Option: 0.1 / 0.32 Long Input Option: 1.8 / 5.9[7]	m / ft
Output Connector	MC4	
Output Wire Length	(+) 5.7 (-) 0.10 / (+) 18.7 (-) 0.32	m / ft
Operating Temperature Range[8]	-40 to +85 / -40 to +185	˚C / ˚F
Protection Rating	IP68 / NEMA6P	
Relative Humidity	0 – 100	%
Maximum Operating Altitude	3000	m

(1) For detailed Power Optimizer/PV module compatibility guidelines, refer to the Application Note – Power Optimizer Compatibility with PV Modules.
(2) 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.
(3) When using bifacial modules, consider only the front side Isc at STC (0% back side gain). For details, see the Compatibility of Bifacial Modules with SolarEdge Power Optimizers application note.
(4) For compliance with EN55011 class A (when required), installation shall be done using an inverter with a rated power of > 20kVA, and comply with the requirements in the EMC section of the Three Phase System with SetApp Configuration installation manual.
(5) S1500 is designed to be paired with inverters that do not have integrated DC fuses. Inverters with DC fuses must be manually adjusted, as described in this technical note.
(6) For other connector types please contact SolarEdge.
(7) For S-Series models with long input cables (1.8m / 5.9ft), the Sense Connect feature is only enabled on the output cable connector.
(8) For ambient temperatures above +65°C / +149°F power derating is applied.

S1500 Mechanical Drawing



* When installing SolarEdge power optimizers, maintaining clearance is required. For details, see the Power Optimizer Clearance application note.

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CE RoHS

/ Power Optimizer

S1500

PV System Design Using a SolarEdge Inverter[1][2]		230/400V Grid SE20K, SE25K*	230/400V Grid SE30K*	230/400V Grid SE33.3K*	277/480V Grid SE40K*	Units
Minimum String Length	Power Optimizers	14	15	14	15	
	PV Modules	27	29	27	29	
Maximum String Length	Power Optimizers[3]	30	30	30	30	
	PV Modules	60	60	60	60	
Maximum Continuous Power per String		18,000	20,400	18,000	20,400	W
Maximum Allowed Connected Power per String[4]		1 string – 20,250	1 string – 22,650	1 string – 20,250	1 string – 22,650	
		2 strings or more – 28,000	2 strings or more – 30,400	2 strings or more – 28,000	2 strings or more – 30,400	
Parallel Strings of Different Lengths or Orientations		Yes				
Maximum Difference Allowed Between Strings Connected to the Same Inverter Unit		5 Power Optimizers Between the Shortest and Longest String				

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

(1) 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, or
2) It is the only Power Optimizer connected to a single PV module in the string.

(2) For SE20K and above, the minimum STC DC connected power should be 11 kW.

(3) When connecting to inverters that support Rapid Shutdown, each string must contain fewer than 28 Power Optimizers to meet NEC Rapid Shutdown requirements.

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

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