Power Optimizer

For Residential Installations

S440 / S500 / S500B / S650B



Enabling PV power optimization at the module level

- Specifically designed to work with SolarEdge residential inverters
- Detects abnormal PV connector behavior, preventing potential safety issues*
- Module-level voltage shutdown for installer and firefighter safety
- Superior efficiency (99.5%)

- Mitigates all types of module mismatch loss, from manufacturing tolerance to partial shading
- Faster installations with simplified cable management and easy assembly using a single bolt
- Flexible system design for maximum space utilization
- Compatible with bifacial PV modules

* Functionality subject to inverter model and firmware version



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	S440	S500	S500B	S650B	UNIT	
INPUT						
Rated Input DC Power ⁽¹⁾	440	50	0	650	W	
Absolute Maximum Input Voltage (Voc)	60		125	85	Vdc	
MPPT Operating Range	8 - 6	50	12.5 - 105	12.5 - 85	Vdc	
Maximum Short Circuit Current (Isc) of Connected PV Module	14.5		15		Adc	
Maximum Efficiency	99.5					
Weighted Efficiency		98.	6		%	
Overvoltage Category						
OUTPUT DURING OPERATION						
Maximum Output Current	15			Adc		
Maximum Output Voltage	60 80				Vdc	
OUTPUT DURING STANDBY (POWER OPTIMIZER	DISCONNECTED I	ROM INVERTER	OR INVERTER OF	F)		
Safety Output Voltage per Power Optimizer	1 ± 0.1					
STANDARD COMPLIANCE ⁽²⁾						
EMC	FCC Part 1	5 Class B, IEC61000-6-2,	IEC61000-6-3, CISPR11,	EN-55011		
Safety	IEC62109-1 (class II safety), UL1741					
Material	UL94 V-0, UV Resistant					
RoHS	Yes					
Fire Safety	VDE-AR-E 2100-712:2018-12					
INSTALLATION SPECIFICATIONS						
Maximum Allowed System Voltage	1000				Vdc	
Dimensions (W x L x H)	129 x 15	5 x 30	129 x 1	65 x 45	mm	
Weight	720	720 790		gr		
Input Connector		MC4	1(3)			
Input Wire Length	0.1				m	
Output Connector	MC4					
Output Wire Length	(+) 2.3, (-) 0.10					
Operating Temperature Range ⁽⁴⁾	-40 to +85					
Protection Rating	IP68					
Relative Humidity	0 – 100				%	

(2) For details about CE compliance, see Declaration of Conformity - CE.

(3) For other connector types please contact SolarEdge.
(4) Power de-rating is applied for ambient temperatures above +85°C for S440 and S500, and for ambient temperatures above +75°C for S500B. Refer to the

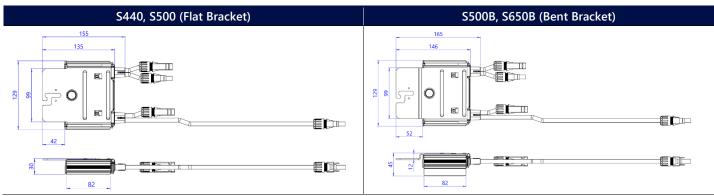
Power Optimizers Temperature De-Rating Technical Note for details.

PV System Design Usi	ng a SolarEdge Inverter ⁽⁵⁾	SolarEdge Home Wave Inverter Single Phase	SolarEdge Home Short String Inverter Three Phase	Three Phase for 230/400V Grid	Three Phase for 277/480V Grid	
Minimum String Length	S440, S500	8	9	16	18	
(Power Optimizers)	S500B, S650B	6	8	14		
Maximum String Length (Power Optimizers)		25	20	50		
Maximum Continuous Power per String		5700	5625	11,250	12,750	W
Maximum Allowed Connected Power per String ⁽⁶⁾ (In multiple string designs, the maximum is permitted only when the difference in connected power between strings is 2,000W or less)		6800 ⁽⁷⁾	See ⁽⁶⁾	13,500	15,000	W
Parallel Strings of Different	Lengths or Orientations	Yes				

(5) It is not allowed to mix S-series and P-series Power Optimizers in new installations in the same string.

(6) If the inverter's rated AC power < maximum continuous power per string, then the maximum connected power per string will be able to reach up to the inverters maximum input DC power. Refer to the Single String Design Guidelines application note.

(7) For inverters with a rated AC power ≥ 8000W that are connected to at least two strings



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