Power Optimizer

For North America

S440 / S500B / S650B



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
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)



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S440 / S500B / S650B

	S440	S500B	S650B		
INPUT					
Rated Input DC Power ⁽¹⁾	440	500	650	W	
Absolute Maximum Input Voltage (Voc)	60	125	85	Vdc	
MPPT Operating Range	8 - 60	12.5 – 105	12.5 - 85	Vdc	
Maximum Short Circuit Current (Isc) of Connected PV Module	14.5	4.5 15			
Maximum Efficiency	99.5				
Weighted Efficiency	98.6				
Overvoltage Category					
OUTPUT DURING OPERATION (POWER OPTIMI	ZER CONNECTED TO	OPERATING SOLAREDGE IN	IVERTER)		
Maximum Output Current	15				
Maximum Output Voltage	60	80)	Vdc	
OUTPUT DURING STANDBY (POWER OPTIMIZE	R DISCONNECTED FR	OM SOLAREDGE INVERTER	OR INVERTER OFF)		
Safety Output Voltage per Power Optimizer		1 ± 0.1		Vdc	
STANDARD COMPLIANCE					
Photovoltaic Rapid Shutdown System	NEC 2014, 2017 & 2020				
EMC	FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3				
Safety	IEC62109-1 (class II safety), UL1741				
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 155 x 30 / 5.07 x 6.10 x 1.18	129 x 165 x 45 / 5	.07 x 6.49 x 1.77	mm / in	
Weight	720 / 1.6	790 /	1.74	gr / lb	
Input Connector	MC4 ⁽²⁾				
Input Wire Length	0.1 / 0.32			m / ft	
Output Connector	MC4				
Output Wire Length	(+) 2.3, (-) 0.10 / (+) 7.54, (-) 0.32			m / ft	
Operating Temperature Range ⁽³⁾	-40 to +85				
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) Power de-rating is applied for ambient temperatures above +85°C / +185°F for \$440, and for ambient temperatures above +75°C / 167°F for \$500B. Refer to the Power.

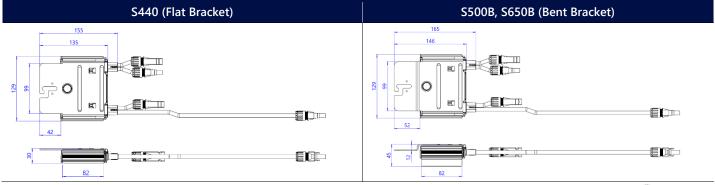
Optimizers Temperature De-Rating Technical Note for more details.

PV System Design Usi	ng a SolarEdgeInverter	SolarEdge Home Wave/Hub - Single Phase	Three Phase for 208V Grid	Three Phase for 277/480V Grid	
Minimum String Length	S440	8	10	18	
(Power Optimizers)	S500B, S650B	6	8	14	
Maximum String Length (Power Optimizers)		25		50(4)	
Maximum Nominal Power per String		5700	6000	12750	W
Maximum Allowed Connected Power per String ⁽⁵⁾ (In multiple string designs, the maximum is permitted only when the difference in connected power between strings is 1,000W or less)		SE6000H: 5700 SE7600H and above: 6000	One string: 7200		W
			Two strings or more: 7800	15000	
Parallel Strings of Different Lengths or Orientations		Yes			

(4) A string with more than 30 optimizers does not meet NEC rapid shutdown requirements; safety voltage will be above the 30V requirement.

(5) If the inverters rated AC power \leq maximum nominal power per string, then the maximum power per string will be able to reach up to the inverters maximum input DC power.

Refer to the <u>Single String Design Guidelines Application Note</u> for more details.
(6) It is not allowed to mix S-series and P-series Power Optimizers in new installations



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