

# Power Optimizer For Residential Installations

S440, S500, S500B



POWER OPTIMIZER

## Enabling PV power optimization at the module level

- Specifically designed to work with SolarEdge residential inverters
- Mitigates all types of module mismatch loss, from manufacturing tolerance to partial shading
- Detects abnormal PV connector behavior, preventing potential safety issues\*
- Faster installations with simplified cable management and easy assembly using a single bolt
- Module-level voltage shutdown for installer and firefighter safety
- Flexible system design for maximum space utilization
- Superior efficiency (99.5%)
- Compatible with bifacial PV modules

\* Functionality subject to inverter model and firmware version

# / Power Optimizer

## For Residential Installations

### S440, S500, S500B

	S440	S500	S500B	UNIT
Rated Input DC Power <sup>(1)</sup>	440	500		W
Absolute Maximum Input Voltage (Voc)	60		125	Vdc
MPPT Operating Range	8 - 60		12.5 - 105	Vdc
Maximum Short Circuit Current (Isc) of Connected PV Module	14.5	15		Adc
Maximum Efficiency	99.5			%
Weighted Efficiency	98.6			%
Overvoltage Category	II			
<b>OUTPUT DURING OPERATION</b>				
Maximum Output Current	15			Adc
Maximum Output Voltage	60		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 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 2100-712:2013-05			
<b>INSTALLATION SPECIFICATIONS</b>				
Maximum Allowed System Voltage	1000			Vdc
Dimensions (W x L x H)	129 x 155 x 30		128.4 x 155 x 45	mm
Weight (including cables)	655			gr
Input Connector	MC4 <sup>(2)</sup>			
Input Wire Length	0.1			m
Output Connector	MC4			
Output Wire Length	(+ ) 2.3, (- ) 0.10			m
Operating Temperature Range <sup>(3)</sup>	-40 to +85			°C
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 ambient temperature above +70°C / +158°F power de-rating is applied. Refer to [Power Optimizers Temperature De-Rating Technical Note](#) for more details

PV System Design Using a SolarEdge Inverter		Single Phase HD-Wave	Three Phase	Three Phase for 277/480V Grid	
Minimum String Length (Power Optimizers)	S440, S500	8	16	18	
	S500B	6		14	
Maximum String Length (Power Optimizers)		25	50		
Maximum Nominal Power per String <sup>(4)</sup>		5700	11250 <sup>(5)</sup>	12750 <sup>(6)</sup>	W
Parallel Strings of Different Lengths or Orientations		Yes			

(4) 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: <https://www.solaredge.com/sites/default/files/se-power-optimizer-single-string-design-application-note.pdf>

(5) For the 230/400V grid: it is allowed to install up to 13,500W per string when the maximum power difference between each string is 2,000W

(6) For the 277/480V grid: it is allowed to install up to 15,000W per string when the maximum power difference between each string is 2,000W

(7) It is not allowed to mix S-series and P-series Power Optimizers in new installations

