

Power Optimizer For Residential Installations

S440, S500



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

| | S440 | S500 | UNIT |
|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------|------|---------|
| Rated Input DC Power ⁽¹⁾ | 440 | 500 | W |
| Absolute Maximum Input Voltage (Voc) | 60 | | Vdc |
| MPPT Operating Range | 8 - 60 | | 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 | | |
| OUTPUT DURING OPERATION | | | |
| Maximum Output Current | 15 | | Adc |
| Maximum Output Voltage | 60 | | 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 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 | | |
| INSTALLATION SPECIFICATIONS | | | |
| Maximum Allowed System Voltage | 1000 | | Vdc |
| Dimensions (W x L x H) | 129 x 155 x 30 | | mm |
| Weight (including cables) | 655 / 1.5 | | gr / lb |
| Input Connector | MC4 ⁽²⁾ | | |
| Input Wire Length | 0.1 | | m |
| Output Connector | MC4 | | |
| Output Wire Length | (+) 2.3, (-) 0.10 | | m |
| Operating Temperature Range ⁽³⁾ | -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 | |
| Maximum String Length (Power Optimizers) | | 25 | 50 | | |
| Maximum Nominal Power per String ⁽⁴⁾ | | 5700 | 11250 ⁽⁵⁾ | 12750 ⁽⁶⁾ | 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

