



Power Optimizer
For Residential Installations
S650A
POWER OPTIMIZER



25 YEAR WARRANTY

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S650A Power Optimizer

Designed for short string residential rooftops

- Specifically designed to work with compatible SolarEdge residential inverters
- Small and multifaceted rooftops segment solution:
 - Reduced number of modules per inverter
 - Extended voltage, reducing yield factor losses
- Improved design flexibility of multifaceted, complex roofs by reducing yield factor losses on the entire system
- Superior efficiency (99.5%)
 - Mitigates diverse 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 a wide range of modules, including high-powered and bifacial PV modules
- Advanced safety:
 - Patented Sense Connect technology- designed to automatically detect and prevent potential electric arcs at the connector level before an arc is created*
 - Patented SafeDC™ – module-level voltage shutdown, for installer and firefighter safety

Power Optimizer

For Residential Installations

S650A

| | | |
|--|--|------|
| | S650A | UNIT |
| INPUT | | |
| Rated Input DC Power(1) | 650 | W |
| Absolute Maximum Input Voltage (Voc) | 80 | Vdc |
| MPPT Operating Range | 12.5 – 80 | Vdc |
| Maximum Short Circuit Current (Isc) of Connected PV Module | 15 | Adc |
| Maximum Efficiency | 99.5 | % |
| Weighted Efficiency | 98.6 | % |
| Overvoltage Category | II | |
| OUTPUT DURING OPERATION | | |
| Maximum Output Current | 15 | Adc |
| Maximum Output Voltage | 110 | Vdc |
| OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM INVERTER OR INVERTER OFF) | | |
| Safety Output Voltage per Power Optimizer | 1 ± 0.1 | Vdc |
| STANDARD COMPLIANCE(2) | | |
| 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 2100-712:2018-12 | |
| INSTALLATION SPECIFICATIONS | | |
| Maximum Allowed System Voltage | 1000 | Vdc |
| Dimensions (W x L x H) | 129 x 165 x 45 | mm |
| Weight | 790 | gr |
| Input Connector | MC4 | |
| 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 | |
| Relative Humidity | 0 – 100 | % |

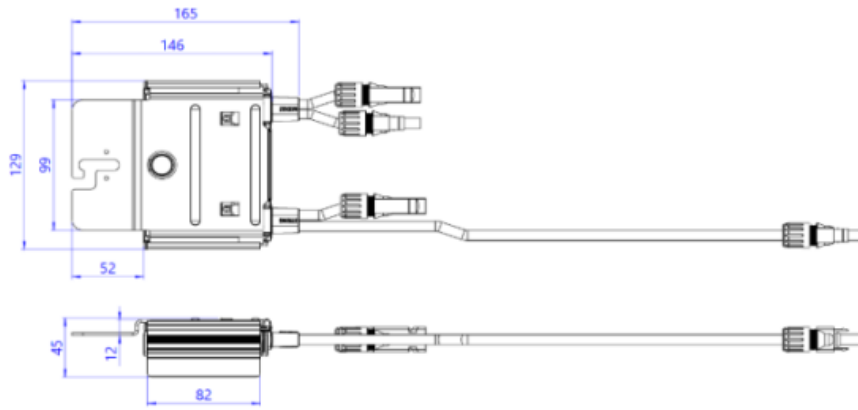
1. The rated power of the module at STC will not exceed the Power Optimizer Rated Input DC Power. Modules with up to +5% power tolerance are allowed.
2. For details about CE compliance, see Declaration of Conformity – CE.
3. Power derating is applied for ambient temperatures above +75°C for S650A.

| | | |
|--|---|-------|
| PV System Design Using a SolarEdge Inverter(4) | SolarEdge Home Wave / Home Hub Inverters – Three Phase for 230/400V Grid(5) | Units |
|--|---|-------|

| | | |
|---|-----------|---|
| Minimum String Length (Power Optimizers) | 10 | |
| Maximum String Length (Power Optimizers) | 50 | |
| Maximum Continuous Power per String | 11,250 | W |
| Maximum Allowed Connected Power per String (In multiple string designs, the maximum is permitted only when the difference in connected power between strings is 2,000 W or less) | 13,500(6) | W |
| Parallel Strings of Different Lengths or Orientations | Yes | |

4. It is not allowed to mix S650A Power Optimizers with any other Power Optimizers on the same inverter.
5. S650A is only compatible with:
 - SolarEdge Home Wave Inverter – Three Phase (SExxK-RW0TEBxN4) from firmware version 4.22.XX and above, for inverters produced after WW42/2020. You can find the production date in the serial number on the inverter label (S/N: SJWWYY-xxxxxxxxxx).
 - SolarEdge Home Hub Inverter – Three Phase (SExxK-RWB48BFN4) from firmware version 4.22.XX and above.
6. If the inverter's rated AC power \leq maximum nominal power per string, then the maximum power per string will be able to reach up to the inverter's maximum input DC power. Refer to the Single String Design Guidelines application note.

S650A (Bent Bracket)




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RoHS **CE**

Documents / Resources

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|---|--|
|  | solaredge S650A Power Optimizer [pdf] Owner's Manual S650A Power Optimizer, S650A, Power Optimizer, Optimizer |
|---|--|

References

- [User Manual](#)

Optimizer, Power Optimizer, S650A, S650A Power Optimizer,

solaredge solaredge

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[solaredge S1000 Power Optimizer For Europe Instructions](#)

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