

Power Optimizer

P605 / P650 / P701 / P730 / P800p /
P801 / P850 / P950 / P1100



POWER OPTIMIZER

PV power optimization at the module level

The most cost-effective solution for commercial and large field installations

- Specifically designed to work with SolarEdge inverters
- High efficiency with module-level MPPT, for maximized system energy production and revenue, and fast project ROI
- Superior efficiency (99.5%)
- Balance of System cost reduction; 50% less cables, fuses, and combiner boxes, and over 2x longer string lengths possible
- Fast installation with a single bolt
- Advanced maintenance with module level monitoring
- Module level voltage shutdown for installer and firefighter safety
- Use with two PV modules connected in series or in parallel

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P605 / P650 / P701 / P730 / P801

| Power Optimizer Module (Typical Module Compatibility) | P605 (for 1 x high power PV module) | P650 (for up to 2 x 60-cell PV modules) | P701 (for up to 2 x 60/120-cell PV modules) | P730 (for up to 2 x 72-cell PV modules) | P801 (for up to 2 x 72/144 cell PV modules) | | |
|---|---|--|--|--|--|---------|---------|
| INPUT | | | | | | | |
| Rated Input DC Power ⁽¹⁾ | 605 | 650 | 700* | 730** | 800 | W | |
| Connection Method | Single input for series connected modules | | | | | | |
| Absolute Maximum Input Voltage (Voc at lowest temperature) | 65 | 96 | | 125 | | Vdc | |
| MPPT Operating Range | 12.5 – 65 | 12.5 – 80 | | 12.5 – 105 | | Vdc | |
| Maximum Short Circuit Current per Input (Isc) | 14.1 | 11 | 11.75 | 11** | 12.5*** | Adc | |
| Maximum Efficiency | | | | 99.5 | | % | |
| Weighted Efficiency | | | | 98.6 | | % | |
| Oversoltage Capacity | | | | II | | | |
| OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER) | | | | | | | |
| Maximum Output Current | | | | 15 | | Adc | |
| Maximum Output Voltage | | | | 80 | | Vdc | |
| OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF) | | | | | | | |
| Safety Output Voltage per Power Optimizer | | | | 1 ± 0.1 | | Vdc | |
| STANDARD COMPLIANCE | | | | | | | |
| EMC | FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3 | | | | | | |
| Safety | IEC62109-1 (class II safety) | | | | | | |
| RoHS | Yes | | | | | | |
| Fire Safety | VDE-AR-E2100-712:2013-05 | | | | | | |
| INSTALLATION SPECIFICATIONS | | | | | | | |
| Compatible SolarEdge Inverters | Three Phase Inverter SE16K & larger | | | | | | |
| Maximum Allowed System Voltage | 1000 | | | | | | Vdc |
| Dimensions (W x L x H) | 129 x 153 x 52 / 5.1 x 6 x 2 | 129 x 153 x 42.5 / 5.1 x 6 x 1.7 | | 129 x 153 x 49.5 / 5.1 x 6 x 1.9 | | mm / in | |
| Weight | 1064 / 2.3 | 834 / 1.8 | | 933 / 2.1 | | gr / lb | |
| Input Connector | MC4 ⁽²⁾ | | | | | | |
| Input Wire Length | 0.16 / 0.52 | | | 0.16 / 0.52, 0.9 / 2.95 ⁽³⁾ | | m / ft | |
| Output Connector | MC4 | | | | | | |
| Output Wire Length | Portrait Orientation: 1.4 / 4.5 | Portrait Orientation: 1.2 / 3.9 | - | Portrait Orientation: 1.2 / 3.9 | | m / ft | |
| | - | Landscape Orientation: 1.8 / 5.9 | | Landscape Orientation: 2.2 / 7.2 | | | |
| Operating Temperature Range ⁽⁶⁾ | -40 to +85 / -40 to +185 | | | | | | °C / °F |
| Protection Rating | IP68 / NEMA6P | | | | | | |
| Relative Humidity | 0 – 100 | | | | | | % |

* For P701 models manufactured after work week 06/2020, the rated DC input is 740W.

** For P730 models manufactured after work week 06/2020, the rated DC input is 760W and the maximum Isc per input is 11.75A.

*** For P801 models manufactured in work week 40/2020 or earlier, the maximum Isc per input in 11.75A.

(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 other connector types, please contact SolarEdge.

(3) Longer input wire lengths are available for use with split junction box modules. For 0.9m/2.95ft order P730-xxxLxxx.

(4) For ambient temperatures 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 ⁽⁵⁾⁽⁶⁾⁽⁷⁾⁽⁸⁾ | | 230/400V Grid SE16K, SE17 SE25K*, SE33.3K* | | 230/400V Grid SE27.6K* | | 230/400V Grid SE30K* | | 277/480V Grid SE33.3K*, SE40K* | | |
|--|------------------|---|---------------------------|---------------------------|---------------------------|-------------------------|---------------------------|-----------------------------------|---------------------------|---|
| Compatible Power Optimizers | | P605 | P650, P701, P730, P801 | P605 | P650, P701, P730, P801 | P605 | P650, P701, P730, P801 | P605 | P650, P701, P730, P801 | |
| Minimum String Length | Power Optimizers | 14 | 14 | 14 | 14 | 15 | 15 | 14 | 14 | |
| | PV Modules | 14 | 27 | 14 | 27 | 15 | 29 | 14 | 27 | |
| Maximum String Length | Power Optimizers | 30 | 30 | 30 | 30 | 30 | 30 | 30 | 30 | |
| | PV Modules | 30 | 60 | 30 | 60 | 30 | 60 | 30 | 60 | |
| Maximum Continuous Power per String | | 11250 | | 11625 | | 12750 | | 12750 | | W |
| Maximum Allowed Connected Power per String ⁽⁶⁾ (Permitted only when the difference in connected power between strings is 2,000W or less) | | 13500 | | 13500 | | 15000 | | 15000 | | W |
| Parallel Strings of Different Lengths or Orientations | | Yes | | | | | | | | |
| Maximum Difference in Number of Power Optimizers Allowed Between the Shortest and Longest String Connected to the Same Inverter Unit | | 5 Power Optimizers | | | | | | | | |

* The same rules apply for Synergy units of equivalent power ratings that are part of the modular Synergy Technology Inverter.

(5) P650/P701/P730/P801 can be mixed in one string only with P650/P701/P730/P801. P605 cannot be mixed with any other Power Optimizer in the same string.

(6) For each string, a Power Optimizer may be connected to a single PV module if 1) each Power Optimizer is connected to a single PV module or 2) it is the only Power Optimizer connected to a single PV module in the string.

(7) For SE16K and above, the minimum STC DC connected power should be 11KW.

(8) To connect more STC power per string, design your project using [SolarEdge Designer](#).

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P800p / P850 / P950 / P1100

| Power Optimizer Module (Typical Module Compatibility) | P800p (for up to 2 x 96-cell 5" PV modules) | P850 (for up to 2 x high power or bi-facial modules) | P950 (for up to 2 x high power or bi-facial modules) | P1100 (for up to 2 x high power or bi-facial modules) | Unit |
|---|---|---|---|--|---------|
| INPUT | | | | | |
| Rated Input DC Power ⁽¹⁾ | 800 | 850 | 950 | 1100 | W |
| Connection Method | Dual input for independently connected | Single input for series connected modules | | | |
| Absolute Maximum Input Voltage (Voc at lowest temperature) | 83 | 125 | | | Vdc |
| MPPT Operating Range | 12.5 – 83 | 12.5 – 105 | | | Vdc |
| Maximum Short Circuit Current per Input (Isc) | 7 | 14.1* | | 14.1 | Adc |
| Maximum Efficiency | 99.5 | | | | % |
| Weighted Efficiency | 98.6 | | | | % |
| Overvoltage Capacity | II | | | | |
| OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER) | | | | | |
| Maximum Output Current | 18 | | | | Adc |
| Maximum Output Voltage | 80 | | | | Vdc |
| OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF) | | | | | |
| Safety Output Voltage per Power Optimizer | 1 ± 0.1 | | | | Vdc |
| STANDARD COMPLIANCE | | | | | |
| EMC | FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3 | | | | |
| Safety | IEC62109-1 (class II safety) | | | | |
| RoHS | Yes | | | | |
| Fire Safety | VDE-AR-E2100-712:2013-05 | | | | |
| INSTALLATION SPECIFICATIONS | | | | | |
| Compatible SolarEdge Inverters | Three Phase Inverter SE16K & larger | | Three Phase Inverter SE25K & larger | | |
| Maximum Allowed System Voltage | 1000 | | | | Vdc |
| Dimensions (W x L x H) | 129 x 168 x 59 / 5.1 x 6.61 x 2.32 | 129 x 162 x 59 / 5.1 x 6.4 x 2.32 | | | mm / in |
| Weight | 1064 / 2.3 | | | | gr / lb |
| Input Connector | MC4 ⁽²⁾ | | | | |
| Input Wire Length | 0.16 / 0.52 | 0.16 / 0.52, 0.9 / 2.95, 1.3 / 4.26, 1.6 / 5.24 ⁽³⁾ | 0.16 / 0.52, 1.3 / 4.26, 1.6 / 5.24 ⁽³⁾ | 0.16 / 0.52, 1.3 / 4.26 ⁽³⁾ | m / ft |
| Output Connector | MC4 | | | | |
| Output Wire Length | Portrait Orientation: 1.2 / 3.9 | | 2.4 / 7.8 | | m / ft |
| | Landscape Orientation: 1.8 / 5.9 | Landscape Orientation: 2.2 / 7.2 | | | |
| Operating Temperature Range ⁽⁴⁾ | -40 to +85 / -40 to +185 | | | | °C / °F |
| Protection Rating | IP68 / NEMA6P | | | | |
| Relative Humidity | 0 – 100 | | | | % |

* For P850/P950 models manufactured in work week 06/2020 or earlier, the maximum Isc per input is 12.5A. The manufacture code is indicated in the Power Optimizer's serial number.
Example: S/N SJ0620A-xxxxxxx (work week 06 in 2020)

(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 other connector types, please contact SolarEdge.

(3) Longer input wire lengths are available for use with split junction box modules.

For 0.9m/2.95ft order P801/P850-xxxLxxx. For 1.3m/2.95ft order P850/P950/P1100 -xxxXxxx. For 1.6m/5.24ft order P850/P950-xxxYxxx).

(4) For ambient temperatures 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 ⁽⁵⁾⁽⁶⁾⁽⁷⁾⁽⁸⁾ | | 230/400V Grid SE16K, SE17K | 230/400V Grid SE25K* | 230/400V Grid SE27.6K* | 230/400V Grid SE30K* | 230/400V Grid SE33.3K | 277/480V Grid SE33.3K*, SE40K* | |
|--|------------------|----------------------------|---------------------------|---------------------------|---------------------------|---------------------------|--------------------------------|---|
| Compatible Power Optimizers | | P800p, P850, P950 | P800p, P850, P950, P1100 | P800p, P850, P950, P1100 | P800p, P850, P950, P1100 | P800p, P850, P950, P1100 | P800p, P850, P950, P1100 | |
| Minimum String Length | Power Optimizers | 14 | 14 | 14 | 15 | 14 | 14 | |
| | PV Modules | 27 | 27 | 27 | 29 | 27 | 27 | |
| Maximum String Length | Power Optimizers | 30 | 30 | 30 | 30 | 30 | 30 | |
| | PV Modules | 60 | 60 | 60 | 60 | 60 | 60 | |
| Maximum Continuous Power per String | | 13500 | 13500 | 13950 | 15300 | 13500 | 15300 | W |
| Maximum Allowed Connected Power per String ⁽⁶⁾ (Permitted only when the difference in connected power between strings is 2,000W or less) | | 1 string – 15750 | 1 string – 15750 | 1 string – 16200 | 1 string – 17550 | 2 strings or less – 15750 | 2 strings or less – 17550 | W |
| | | 2 strings or more – 18500 | 2 strings or more – 18500 | 2 strings or more – 18950 | 2 strings or more – 20300 | 3 strings or more – 18500 | 3 strings or more – 20300 | |
| Parallel Strings of Different Lengths or Orientations | | Yes | | | | | | |
| Maximum Difference in Number of Power Optimizers Allowed Between the Shortest and Longest String Connected to the Same Inverter Unit | | 5 Power Optimizers | | | | | | |

* The same rules apply for Synergy units of equivalent power ratings that are part of the modular Synergy Technology Inverter.

(5) P800p/P850/P950/P1100 can be mixed in one string only with P800p/P850/P950/P1100.

(6) For each string, a Power Optimizer may be connected to a single PV module if 1) each Power Optimizer is connected to a single PV module or 2) it is the only Power Optimizer connected to a single PV module in the string.

(7) For SE16K and above, the minimum STC DC connected power should be 11kW.

(8) To connect more STC power per string, design your project using [SolarEdge Designer](#).

SolarEdge is a global leader in smart energy technology. By leveraging world-class engineering capabilities and with a relentless focus on innovation, SolarEdge creates smart energy solutions that power our lives and drive future progress.

SolarEdge developed an intelligent inverter solution that changed the way power is harvested and managed in photovoltaic (PV) systems. The SolarEdge DC optimized inverter maximizes power generation while lowering the cost of energy produced by the PV system.

Continuing to advance smart energy, SolarEdge addresses a broad range of energy market segments through its PV, storage, EV charging, UPS, and grid services solutions.

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