
Power Optimizer

P370 / P401 / P404 / P485 / P500 / P505 / P601

POWER OPTIMIZER



PV power optimization at the module level

- Specifically designed to work with SolarEdge inverters
- Superior efficiency (99.5%)
- Up to 25% more energy
- Flexible system design for maximum space utilization
- Next generation maintenance with module-level monitoring
- Module-level voltage shutdown for installer and firefighter safety
- Mitigates all types of modules mismatch-loss, from manufacturing tolerance to partial shading
- Fast installation with a single bolt

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| OPTIMIZER MODEL (typical module compatibility) | P370 (60&70 Cell modules) | P401 (60&70 Cell modules) | P404 (for 60-cell and 72 cell, short strings) | P485 (for high voltage modules) | P500 (for 96-cell modules) | P505 (for higher current modules) | P601 (for 1 x high power PV module) | UNIT |
|---|---|--------------------------------------|--|--|-------------------------------------|--|--|------------|
| INPUT | | | | | | | | |
| Rated Input DC Power ⁽¹⁾ | 370 | 400 | 405 | 485 | 500 | 505 | 600 | W |
| Absolute Maximum Input Voltage (Voc at lowest temperature) | 60 | | 80 | 125 | 80 | 83 | 65 | Vdc |
| MPPT Operating Range | 8 - 60 | | 12.5 - 80 | 12.5 - 105 | 8 - 80 | 12.5-83 | 12.5 - 65 | Vdc |
| Maximum Short Circuit Current (Isc) | 11 | 11.75 | 11 | | 10.1 | 14 | | Adc |
| Maximum Efficiency | 99.5 | | | | | | | % |
| Weighted Efficiency | 98.8 | | | | | | 98.6 | % |
| Overvoltage Category | II | | | | | | | |
| OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER) | | | | | | | | |
| Maximum Output Current | 15 | | | | | | | Adc |
| Maximum Output Voltage | 60 | | 80 | | 60 | 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), UL1741 | | | | | | | |
| 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 153 x 27.5 / 5.1 x 6 x 1.1 | 129 x 153 x 29.5 / 5.1 x 6 x 1.16 | 129 x 153 x 42.5 / 5.1 x 6 x 1.7 | 129 x 159 x 49.5 / 5.1 x 6.2 x 1.9 | 129 x 153 x 33.5 / 5.1 x 6 x 1.3 | 129 x 162 x 59 / 5.1 x 6.4 x 2.3 | 129 x 153 x 52 / 5.1 x 6 x 2 | mm / in |
| Weight (including cables) | 655 / 1.5 | | 775 / 1.7 | 845 / 1.9 | 750 / 1.7 | 1064 / 2.3 | | gr / lb |
| Input Connector | MC4 ⁽²⁾ | | | Single or Dual MC4 ⁽²⁾⁽³⁾ | MC4 ⁽²⁾ | | | |
| Input Wire Length | 0.16 / 0.52, 0.9 / 2.95 | | 0.16 / 0.52 | | | | | m / ft |
| Output Connector | MC4 | | | | | | | |
| Output Wire Length | 1.2 / 3.9 | | | | | 1.4 / 4.5 | | m / ft |
| Operating Temperature Range ⁽⁴⁾ | -40 to +85 / -40 to +185 | | | | | | | °C / °F |
| Protection Rating | IP68 | | | | | | | |
| Relative Humidity | 0 - 100 | | | | | | | % |

(1) Rated power of the module at STC will not exceed the optimizer "Rated Input DC Power". Modules with up to +5% power tolerance are allowed

(2) For other connector types please contact SolarEdge

(3) For dual version for parallel connection of two modules use the P485. In the case of an odd number of PV modules in one string, installing one P485 dual version power optimizer connected to one PV module is supported. When connecting a single module, seal the unused input connectors using the supplied pair of seals

(4) 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 ⁽⁵⁾ | Single Phase HD-WAVE | Single Phase | Three Phase | Three Phase for 277/480V Grid | |
|--|---------------------------------|--------------|-----------------------------------|----------------------------------|---|
| Minimum String Length (Power Optimizers) | P370, P401, P500 ⁽⁶⁾ | 8 | 16 | 18 | |
| | P404, P485, P505, P601 | 6 | 14 (13 with SE3K ⁽⁷⁾) | 14 | |
| Maximum String Length (Power Optimizers) | 25 | | 50 | 50 | |
| Maximum Nominal Power per String ⁽⁸⁾ | 5700 | 5250 | 11250 ⁽⁹⁾ | 12750 ⁽¹⁰⁾ | W |
| Parallel Strings of Different Lengths or Orientations | Yes | | | | |

(5) It is not allowed to mix P404/P485/P505/P601 with P370/P401/P500 in one string

(6) The P370/P401/P500 cannot be used with the SE3K three phase inverter (available in some countries; refer to the three phase inverter SE3K-SE10K datasheet)

(7) Exactly 10 when using SE3K-RW010BNN4

(8) If the inverters rated AC power ≤ 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>

(9) 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

(10) 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