

# 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
- Up to 25% more energy
- Superior efficiency (99.5%)
- Balance of System cost reduction; 50% less cables, fuses and combiner boxes, 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 up to two PV modules connected in series or in parallel

# Power Optimizer

P605 / P650 / P701 / P730 / P801

Power Optimizer Model (Typical Module Compatibility)	P605 (for 1 x high power PV modules)	P650 (for up to 2 x 60-cell PVmodules)	P701 (for up to 2 x 60/120-cell PV modules)	P730 (for up to 2x 72-cell PVmodules)	P801 (for up to 2 x 72/144-cell PV modules)	
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INPUT							
Rated Input DC Power <sup>(1)</sup>	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	%
Overvoltage Category						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-E 2100-712:2013-05					

INSTALLATION SPECIFICATIONS							
Compatible SolarEdge Inverters	Three phase inverters 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 <sup>(2)</sup>						
Input Wire Length	0.16 / 0.52			0.16 / 0.52, 0.9 / 2.95 <sup>(3)</sup>		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 <sup>(4)</sup>	-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 is 11.75A

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

(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 <sup>(5)(6)(7)</sup>		230/400V Grid SE16K, SE17K, 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 <sup>(8)</sup> (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								

\* 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](#)

# Power Optimizer

P800p / P850 / P950 / P1100

Power Optimizer Model (Typical Module Compatibility)	P800p (for up to 2 x 96-cell 5" PV modules)	P850 (for up to 2 x highpower or bi- facial modules)	P950 (for up to 2 x highpower or bi- facial modules)	P1100 (for up to 2 x highpower or bi- facial modules)	
<b>INPUT</b>					
Rated Input DC Power <sup>(1)</sup>	800	850	950	1100	W
Connection Method	Dual input for independently connected <sup>(7)</sup>	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 Category	II				
<b>OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREEDGE INVERTER)</b>					
Maximum Output Current	18	18			Adc
Maximum Output Voltage	80				Vdc
<b>OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREEDGE INVERTER OR SOLAREEDGE INVERTER OFF)</b>					
Safety Output Voltage per Power Optimizer	1 ± 0.1				Vdc
<b>STANDARD COMPLIANCE</b>					
EMC	FCC Part 15 Class B, IEC61000-6-2, IEC61000-6-3				
Safety	IEC62109-1 (class II safety)				
RoHS	Yes				
Fire Safety	VDE-AR-E 2100-712:2013-05				
<b>INSTALLATION SPECIFICATIONS</b>					
Compatible SolarEdge Inverters	Three phase inverters SE16K & larger			Three phase inverters 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	1064 / 2.3			gr / lb
Input Connector	MC4 <sup>(2)</sup>				
Input Wire Length	0.16 / 0.52	0.16 / 0.52, 0.9 / 2.95, 1.3 / 4.26, 1.6 / 5.24 <sup>(3)</sup>	0.16 / 0.52, 1.3 / 4.26, 1.6 / 5.24 <sup>(3)</sup>	0.16 / 0.52, 1.3 / 4.26 <sup>(3)</sup>	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 <sup>(4)</sup>	-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) 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 inputs wire length 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 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 <sup>(5)(6)(7)</sup>	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	15	14	14	
	PV Modules	27	27	29	27	27	
Maximum String Length	Power Optimizers	30	30	30	30	30	
	PV Modules	60	60	60	60	60	
Maximum Continuous Power per String	13500	13500	13950	15300	13500	15300	W
Maximum Allowed Connected Power per String <sup>(8)</sup> (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						

\* 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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