

# Solar inverter

## Solar inverter ES 5000

Grid-connected

ES 5000 – 2000Watt – 2 MPPT

ES 5000 – 3000Watt – 2 MPPT

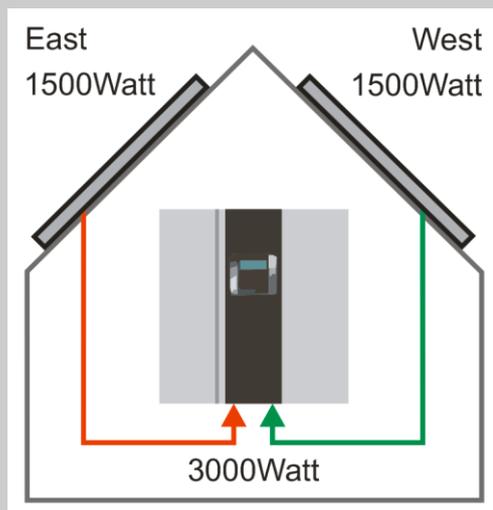
**NEU / NEW**



The EFFEKTA® ES 5000 photovoltaic-inverters are equipped with 2 MPP-Trackers. So they are ideally suitable for solar plants, where the modules are fixed on both sides of a saddle roof. Furthermore partial shadowed modules or mis-matched alignments of the roof will have a less adverse effect to the energy output of your photovoltaic system.

The increased constancy of the power input will enhance the possible power production. The outcome of this is an earlier amortization of the system.

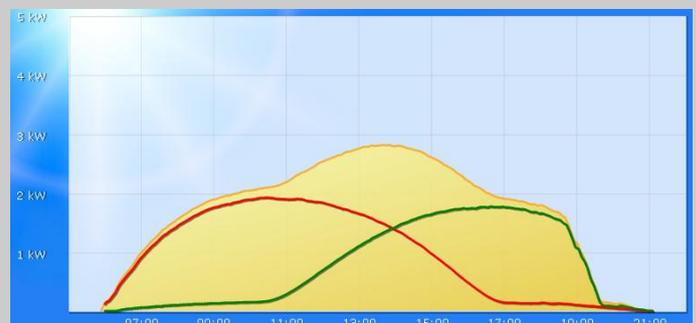
Bottom picture:  
A frequent line-up – a saddle roof directed east-west.



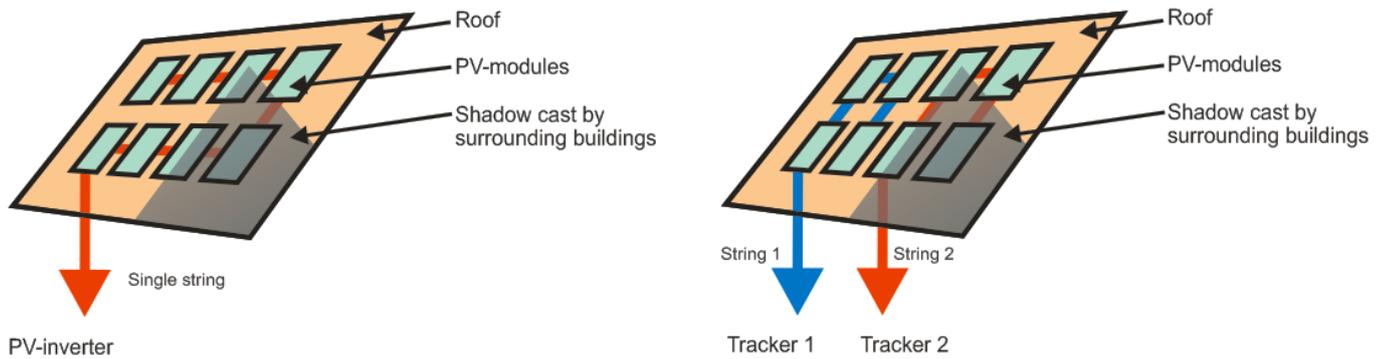
### Features

- Transformer-less with high efficiency (>96 %)
- 2 MPP-Trackers
- Wide range of working temperature: -25° C up to +50° C
- Intelligent MPP-Tracking
- Suitable to operate either indoor or outdoor (IP65)
- Fan-less through convection cooling
- RS232-communication
- wide communication equipment:  
Slots for RS-485 USB, relays card or TCP/IP
- 5 years' warranty  
( optionally expandable to 10 years)

Bottom picture: Optimized energy production curve of two separate MPP-Trackers of an ES 5000 inverter with 3000W (Chart recorded via SolarLog™)



Advantage of two trackers in the PV-inverter when parts of modules are shadowed



With only one tracker the power generation of the entire PV system is reduced to the level of the affected PV modules

With two trackers only the power generation of the affected string is reduced to the level of the shadowed PV modules

# Specification

Model		ES 5000 - 2000W	ES 5000 - 3000W
<b>Inverter-technology</b>	Implementation	sine-wave, current source, change-/ high-frequency PWM	
	Isolation method	version without transformer *	
<b>DC-input</b>	Nominal voltage	360V <sub>DC</sub>	
	Max. input voltage	500V <sub>DC</sub>	
	Operating voltage	120V <sub>DC</sub> to 500V <sub>DC</sub> **	
	Max. current (each MPPT)	(2x) 7,3A	(2x) 11A
	Max. power (each MPPT)	1100W	1650W
	MPPT range	150V <sub>DC</sub> to 450V <sub>DC</sub>	
	MPPT tracker	2	
<b>AC-output</b>	Nominal power	2000W	3000W
	Max. AC power	2200W	3300W
	Nominal AC voltage	230V <sub>AC</sub>	
	Form of the output connection	1-phase, mains connection (L, N, PE)	
	AC voltage range	184V <sub>AC</sub> to 264,5V <sub>AC</sub> (basic 230V <sub>AC</sub> )	
	Nominal AC current	8,69A	13A
	Frequency	50/60Hz, auto select	
	Power factor	>0,99 with nominal AC	
	Harmonic distortion	total harmonic distortion: under 5%	
		single harmonic distortion: under 3%	
<b>Efficiency</b>	Max. efficiency	>96%	
	Euro efficiency	>94%	
	CEC efficiency	>9 %	
	Standby-consumption	<7W	
<b>Environment</b>	Operating temperature	-25°C to +50°C (-13°F to 122°F)	
	Humidity	0 to 90 % (without condensation)	
	Audible noise	45dBA	
<b>Mechanic</b>	Dimensions (H x W x T in mm)	510 x 455 x 190	
	Weight (Kg)	29	
	Enclosure	IP65, outdoor operating	
	Cooling	convection	
	AC connection	terminal	
	DC connection	MC4 pluggable	
	<b>Communication</b>	Standard	RS232
Optional		USB, RS485, potential free contact, TCP/IP	
<b>Front panel</b>	LCD	energy output / input DC voltage / input DC current / input DC current capacity / output AC voltage / output AC current / output frequency / output AC current capacity / inside temperature/ cooling body temperature / status signal / failure signal	
	LED	red: grounding failure or DC-input isolation failure yellow: supply conditions are not comply with input limit values of photovoltaic inverter green: solar cell energy is higher or lower than 5 % of nominal capacity of the photovoltaic inverter	
	Keyboard	up button / down button / function button / enter-button	
<b>Safety</b>	Mains supply	over-/under voltage, over-/under frequency, grounding failure, DC-input isolation failure, off-grid operation	
	Short circuit	DC input: input diode / electronically switching AC output: output relay / electronically switching	
	EPO	photovoltaic inverter switches off immediately	
	Over temperature	≤50°C (122°F) at full power / ≥50°C(122°F) at reduced power	
<b>Certification</b>	Safety	Europa VDE0126-1-1, EN50178, IEC62103	
	EMI/EMC	EN 61000-6-2, EN 61000-6-3	

\* no galvanic isolation – note installation introduction of the solar-panel manufacturer.

\*\* nominal range should be from 150V<sub>DC</sub> up to 500V<sub>DC</sub>, to achieve the nominal capacity.