



# Enjoy the *smart shine*

The most economic way for mankind to face climate change is to find some renewable technologies with enough competitive advantage.

**Solar energy is the most promising way to achieve this goal.** The efficiency of the facilities and the cost of generating energy are the key factors for the massive implementation of renewables energies.

**The most efficient solar technology—in terms of electricity generation—is the photovoltaic concentration (CPV).** In addition, around 50% of all the energy consumed in the world is used for the heating supply covering also this need.

Electric installation is becoming the best option while expecting to be the big change in the energy sector in the coming decades.

At SOLARAYS we create **ultra-efficient solar energy at very low costs** using passive solar tracking technology (patented by SOLARAYS), without the use of motors or electronic devices. With the same roof space, we get double the energy than other technologies, so **we are doubly green.**

**1** Supply of electric and thermal energy in only one module

**2** Generation of stable energy during the day, allowing much more self-supply percentage and less batteries

**3** Quick and easy installation on any roof or surface

**4** Low visual impact and low weight

**5** High energy density and lower cost of energy generation

**6** Technology designed and manufactured in Spain with recyclable components



**SOLARAYS**  
[solaraysenergy.com](http://solaraysenergy.com)

# Combi 985

Ultra efficient solar module with built-in passive solar tracking.

Simultaneous production of thermal and electrical energy:



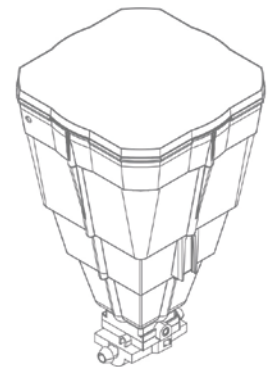
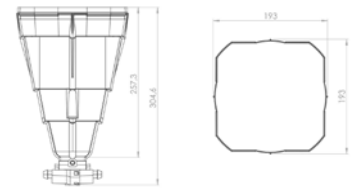
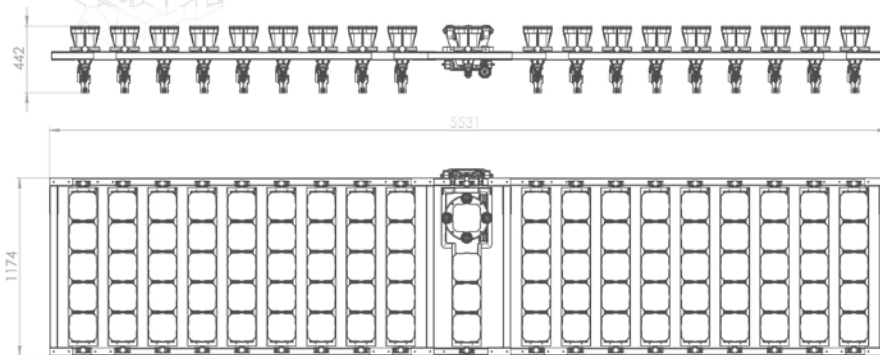
**Electric**  
**40%**



**Thermal**  
**60%**

Stable and continuous power generation at maximum power.

## Dimensions



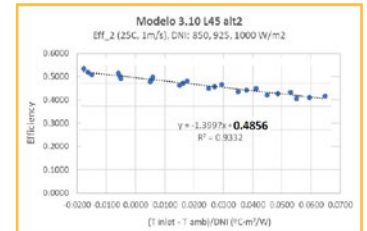
### Electric Specifications

STC standard test conditions: AM 1.5, Irradiance 1000 W / m<sup>2</sup>, cell temperature 25 ° C.

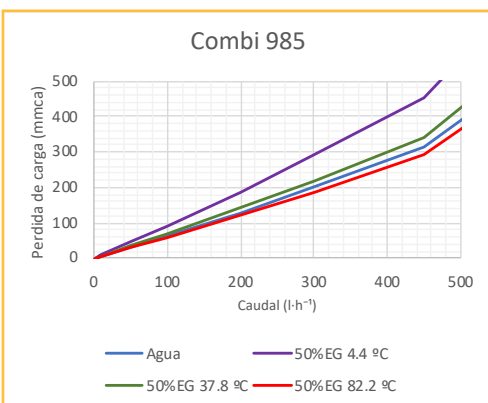
Cell type	CPV solar Cell 3C44C
<b>Nominal power (W)</b>	<b>985 W</b>
Maximum Power Voltage (V mpp)	87.11 V
Maximum Power Current (I <sub>mp</sub> )	11.31 V
Open Circuit Voltage (V oc)	97.65 V
Short Circuit Current (I <sub>sc</sub> )	11.50 A
<b>Efficiency at 25°C</b>	<b>33.41%</b>
Power Tolerance (W)	±5 %
Maximum System Voltage	DC 1000V (IEC)
Pmpp Temperature Coefficient	-0.106 %/°C
Coefficiente de temperatura de V oc	-0.135 %/°C
Voc Temperature Coefficient	+0.080 %/°C
Performance by degradation at 25 years	100%
Half-life degradation	0%
Maximum reverse current	15 A
NOCT* temperature	90± 20°C

### Thermal Specifications

Optical performance	0,4856
<b>Nominal power (W)</b>	<b>1433 W</b>
Coeff. Linear Losses	1.3997 W <sup>2</sup> ·C <sup>-2</sup>
<b>Efficiency at room temperature</b>	<b>48,56%</b>
Internal liquid volume (glycol + water)	3.9 L
Stagnation temperature	90°C
No. of hydraulic connections	4
Measure Hydraulic connection	G3/4" M
Maximum admissible pressure	3 bar
Nominal flow	225 L/h
Head loss at nominal flow	150 mmca



### Loss of load



### Operating conditions and mechanic data

Temperature	-10°C a +90°C
Impact resistance	Hail ø 25 mm to 23 m/s
Primary optics (CPV Lens)	Plexiglas IM20
Secondary optics (SOE)	Optical glass
Cells	CPV solar Cell 3C44C
Optical efficiency	82%
Max. Load - Wind:	2400 Pa 550 kg/m <sup>2</sup> on front and rear face
Max. Load - Wind:	5400 Pa 550 kg/m <sup>2</sup> on front and rear face
Frame	Galvanized steel (50x50x2)
Subject to technical modifications.	

Product warranty 10 años.  
25-year generation warranty.

More information in  
[solarayenergy.com](http://solarayenergy.com)

Designed and assembled in Spain.  
In accordance with Product Standards pending:  
IEC 62108, UNE-EN-62108, IEC 62817, UNE-EN 12975

