



# SolarBotanic<sup>TM</sup> Trees

Product Catalogue

November 2024

Designed by the [University of Sheffield's Advanced Manufacturing and Research Centre](#)

| Manufactured by [Tinsley Bridge Group](#)



# SolarBotanic Tree



## Performance

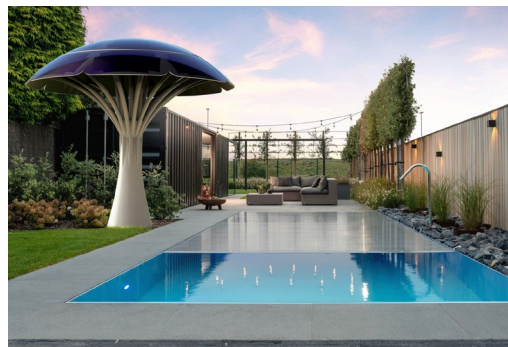
Nominal installed capacity	3.0 – 4.0	kW <sup>1</sup>
Energy generation capacity	3,000 – 6,000	kWh <sup>2</sup>
Battery capacity	0 – 40	kWh <sup>3</sup>

## Physical

Trunk footprint diameter	0.5 – 1.0	m
Height	3.5 – 4.0	m
Canopy width	4.5 – 5.5	m
Weight	750 – 1,250	kg

## Operating conditions

Wind rating	90	MPH
Ambient temperature	-20 – 60	°C
Relative Humidity	0 – 100	%
Waterproofing	IP55 – IP67	



<sup>1</sup> At Standard Testing Conditions (STC)

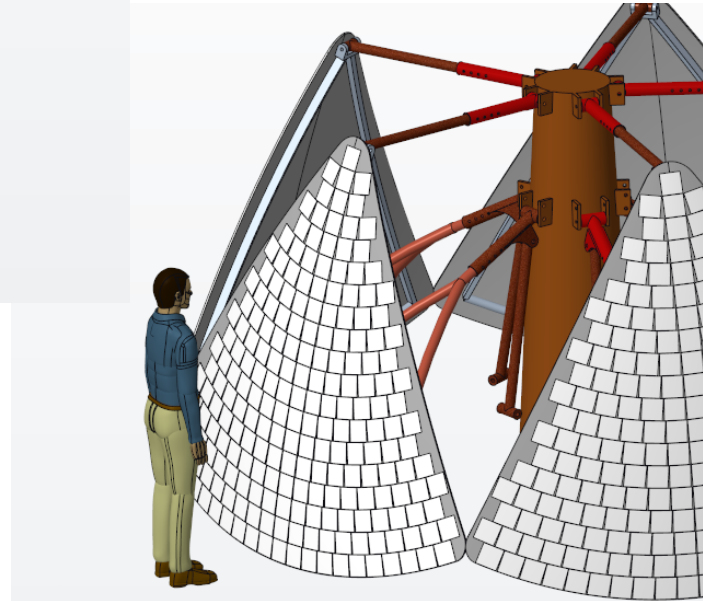
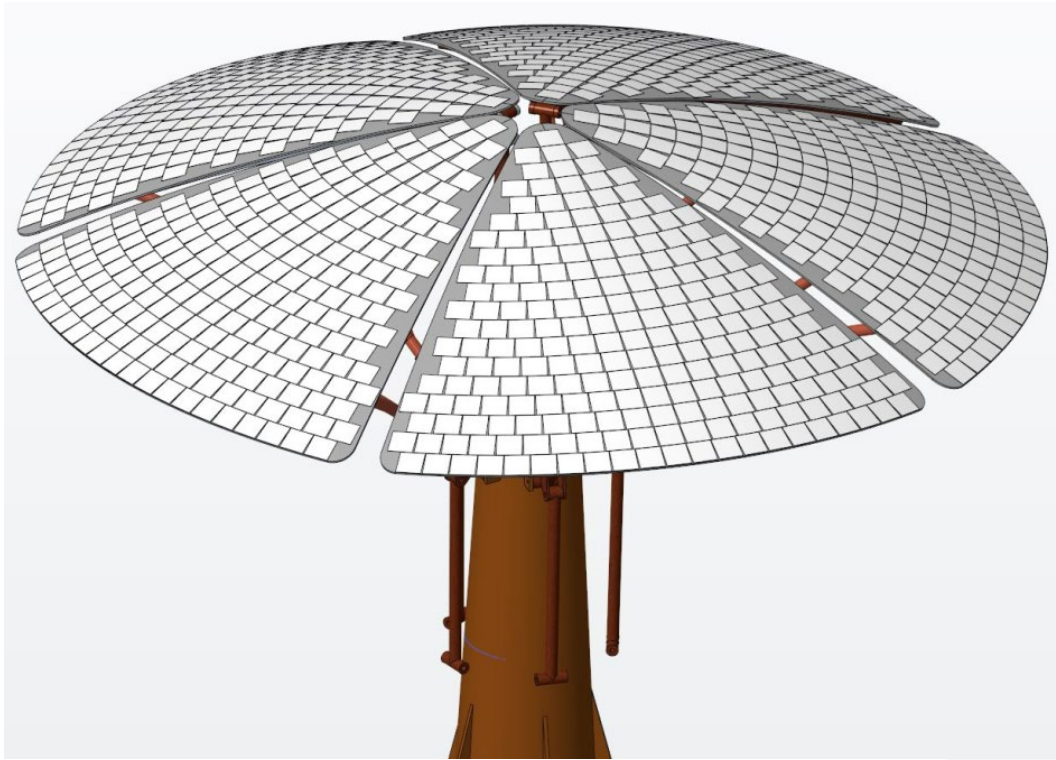
<sup>2</sup> Depending on the local climate conditions, for example:

- London, UK - 3,000kWh/year

- Doha, Qatar - 5,800kWh/year

<sup>3</sup> Optional battery energy storage can be integrated into the Trunk, scalable in increments of 5kWh.

# SolarBotanic Tree Lite



## Performance

Nominal installed capacity	2.0 – 3.0	kW <sup>1</sup>
Energy generation capacity	2,000 – 4,500	kWh <sup>2</sup>
Battery capacity	0 – 20	kWh <sup>3</sup>

## Physical

Trunk footprint diameter	0.5 – 1.0	m
Height	3.5 – 4.0	m
Canopy width	4.0 – 5.0	m
Weight	700 – 1,000	kg

## Operating conditions

Wind rating	90	MPH
Ambient temperature	-20 – 60	°C
Relative Humidity	0 – 100	%
Waterproofing	IP55 – IP67	

<sup>1</sup> At Standard Testing Conditions (STC)

<sup>2</sup> Depending on the local climate conditions, for example:

- London, UK - 2,000kWh/year
- Doha, Qatar - 4,500kWh/year

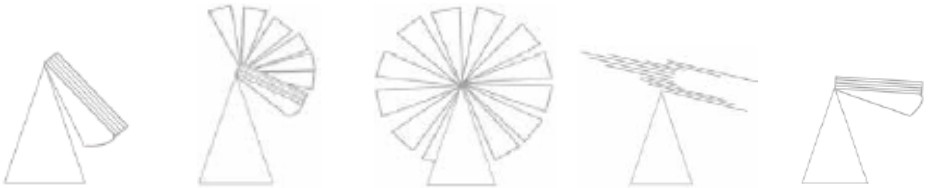
<sup>3</sup> Optional battery energy storage can be integrated into the Trunk, scalable in increments of 5kWh.



# PV Sunflower



"PV Sunflower" comprises 12 photovoltaic leaves, with biomimetic sunflower characteristics, always facing the sun from morning till evening. Solar Tracking can increase the energy generated by 40% over non-tracking.



Open automatically in the morning      Track the sun all-day      Close automatically in the evening

The device can synchronously and automatically track the sun along the horizontal direction of 270 degrees and the elevation direction. The installed power is 2.4KW.

Name	<b>Triple Axis CD Solar Tracker</b>
Model	ZHCD-GZS2.6
System Power	2.4KW
Power Capacity	11-17kwh/day
Rated voltage	110-220V
Net weight	950KG
Working temp	-20°C~60°C
Max hail impact	25mm; 23m/s
Max size	5,000*5,000*5,000mm
Tracking system	Triple Axis
Work-life	≥20YearsLevel
Windproof	Beaufort class 12 (72 – 83 MPH)
Waterproof	IP55

# PV Umbrella

## Urban leisure furniture

Combining a sunshade, solar energy, and multiple convenient services in clean energy urban furniture.

The PV umbrella also has functions such as lighting and wireless charging, which can provide energy to products such as mobile phones and tablets. Audio and video functions can be achieved through audio and Bluetooth connectivity.



## Parameter

Power	1.0 – 1.2	kW <sup>1</sup>
Storage	5 – 10	kWh
Module	Single glass / Lightweight	
Function	Lighting, resting, charging	
Material	Steel, composite, glass	

<sup>1</sup> At Standard Testing Conditions (STC)



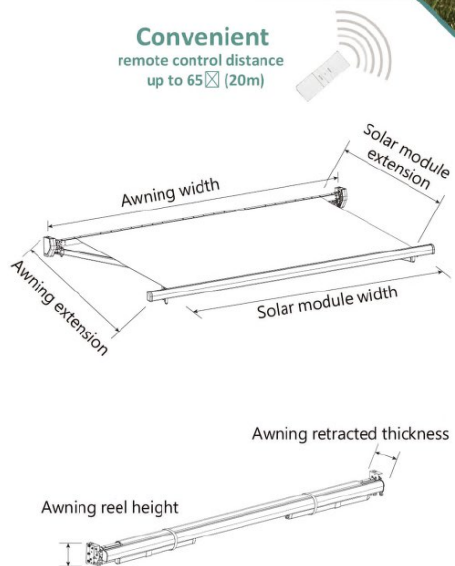


# Building Integrated Photovoltaics (BIPV) - Awning



\*Versatile  
\*Durable  
\*Innovative  
\*Sustainable

Convenient  
remote control distance  
up to 65' (20m)



Product model	HPA2010ALM500W - 8ft	HPA2010ALM800W - 12ft
Solar system power	500W	800W
Solars system voltage	75V	112.5V
Solar system current	7.7A	7.7A
Solar module width	6.85ft (2.09m)	10.25ft (3.12m)
Solar module extension	6.44ft (1.96m)	6.44ft (1.96m)
Awning width	8ft (2.44m)	12ft (3.66m)
Awning extension	6.74ft (2.05m)	6.74ft (2.05m)
Awning retracted thickness	8.66in (220mm)	8.66in (220mm)
Awning reel height	9.45in (240mm)	9.45in (240mm)
Product weight	88.5lb (40.2kg)	102.6lb (46.6kg)
Mounting plates	Wall (Flat surface)	
Motor	DUYA motor DC 12V	
Hardware material	Heavy-duty aluminum	
Tensor arms	Spring-loaded stainless steel chain	
UV resistance	100% UV blockage	
Light strip	Single LED light strip (Rear)	
Certification	CE / FCC / ROHS / REACH / C-TICK / PSE / UL	
Warranty	5 years	



Leading flexible solar module technology



360° rollable & flexible  
Can repeat 360° rolling up to  
10000 times



HBC technology



Wind, water and chemical resistant  
Durable solar modules made for all conditions



More electricity generated  
+10% more power generated under high temperature environment



Lowest installation cost  
No mounting system needed & Easy to Install



Ultra lightweight  
The lightest weight of the kind, 2.2kg/m²



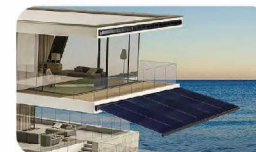
Flexible applications  




Omnidirectional  
No limit of installation angle



Provide shade and shelter  
Rain and sun protection at your site





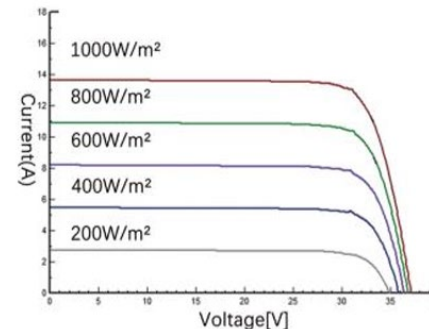
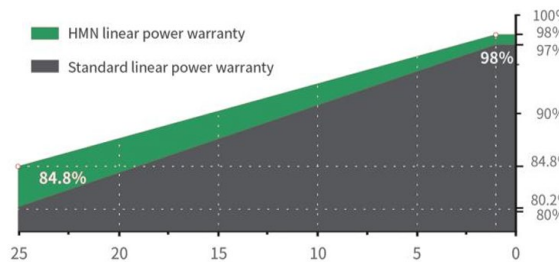
# Building Integrated Photovoltaics (BIPV) - Roofing



## TWM115-230-315

### Advantages

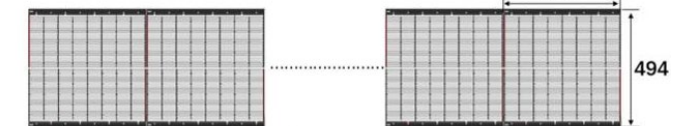
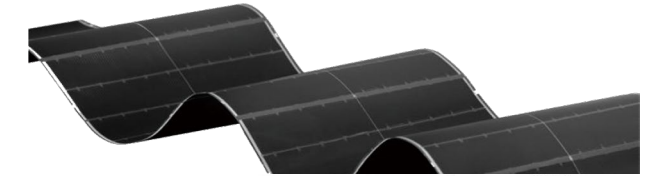
-  **Light Weight**  
Frameless, Glass free
-  **Flexibility**  
Special manufacturing process and materials provide bending ability
-  **Aesthetic Appearance**  
Half cell design, High Consistency
-  **Easy Installation**  
Light weight, easy for handling
-  **Customized**  
Provide Customized Service



### ELECTRICAL CHARACTERISTICS

STC	TWM115-S	TWM230-S	TWM315-S
Maximum Power (P <sub>max</sub> )	115W	230W	315W
Maximum Power Voltage (V <sub>mpp</sub> )	35.1V	70.1V	96.3V
Maximum Power Current (I <sub>mpp</sub> )	3.6A	3.6A	3.6A
Open-circuit Voltage (V <sub>oc</sub> )	43.4V	86.8V	119.4V
Short-circuit Current (I <sub>sc</sub> )	3.8A	3.8A	3.8A
Module Efficiency (%)	14.60%	14.60%	14.50%
Operating Temperature	-40°C to 85 °C		
Maximum System Voltage	1000 VDC IEC		
Maximum Series Fuse Rating	20 A		
Application Class	Class A		
Power Tolerance	0~+5W	0~+10W	0~+15W

STC: Irradiance 1000W/m², module temperature 25°C, AM=1.5



115W: 4pcs

230W: 8pcs

315W: 16pcs

### MECHANICAL CHARACTERISTICS

Solar Cell	CIGS Film Cell		
No. of cells	64	128	176
	L: 2068	3978	5411
Installation Module Dimension (mm)	W: 494	494	494
	H: 3	3	3
Weight (only module)	2.4	4.6	6.3
Weight (module with adhesive glue)	3.1	6.0	8.1
Backsheet	White PV Backsheet		
J-Box	IP 67 rated		
Output cables	4mm <sup>2</sup>		
Connector	MC4 compatible		

### TEMPERATURE CHARACTERISTICS

Maximum Power (P <sub>max</sub> )	-0.36%/°C
Maximum voltage (V <sub>mp</sub> )	-0.31%/°C
Open-circuit Voltage (V <sub>oc</sub> )	-0.28%/°C
Short-circuit Current (I <sub>sc</sub> )	+0.01%/°C

### LOW-LIGHT CHARACTERISTICS

Irradiances	1000W/m²	800W/m²	600W/m²	400W/m²	200W/m²
Relative efficiency	100%	100.9%	101.5%	100.7%	97.1%

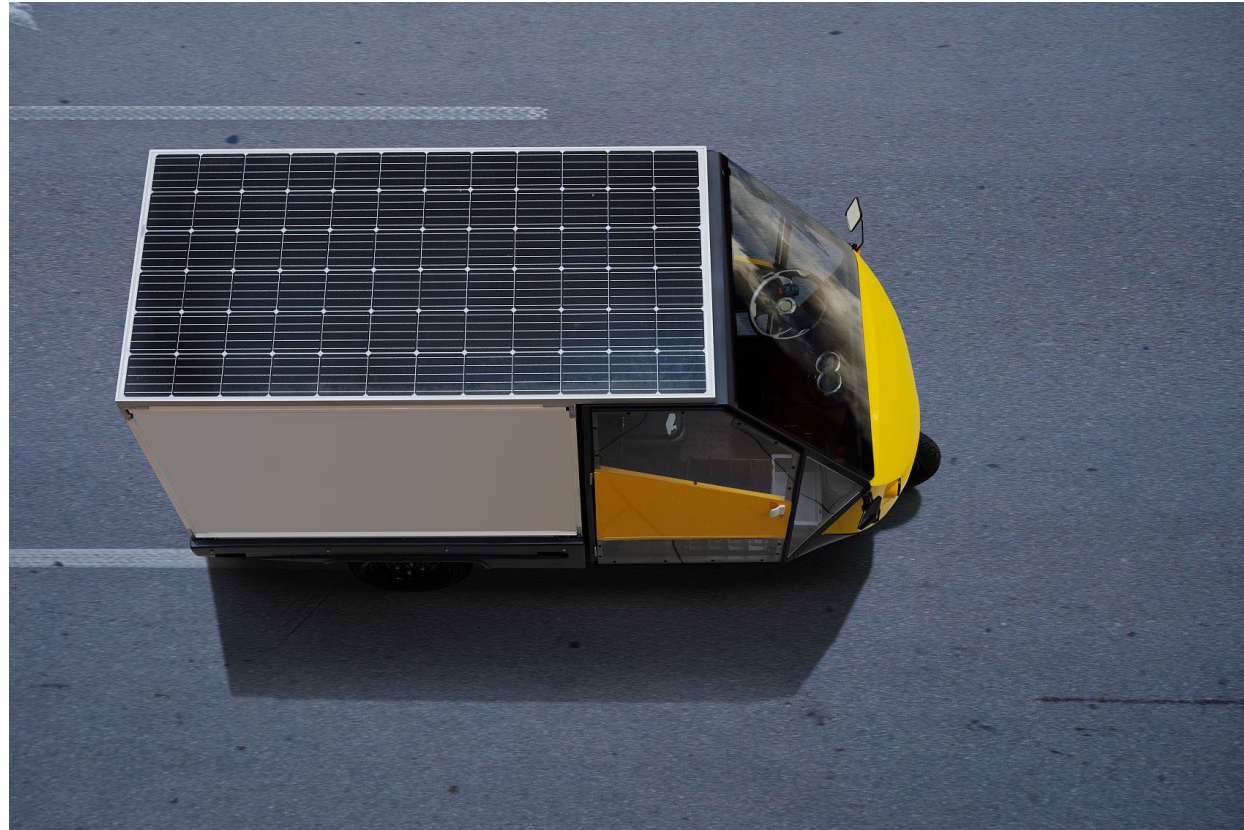


# Building Integrated Photovoltaics (BIPV) - Façade & Curved Surfaces





# Vehicle Integrated Photovoltaics (VIPV)



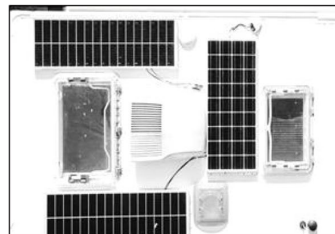
## STEP 1

Apply structural adhesive on cleaned vehicle roof, and gently press solar panels on top of the adhesive.



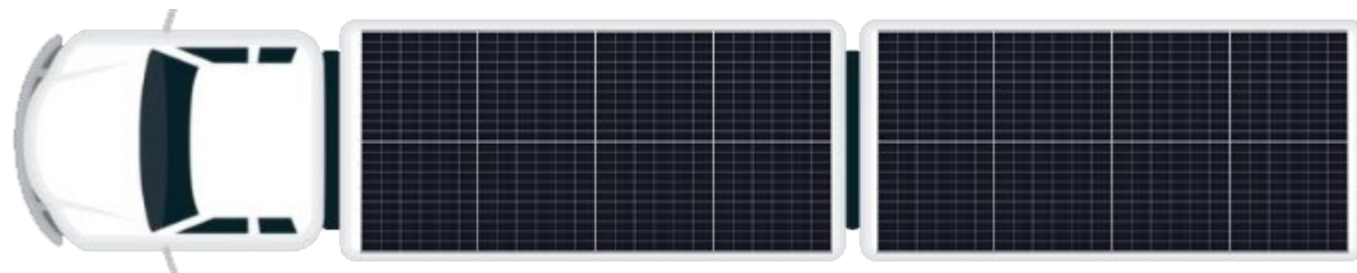
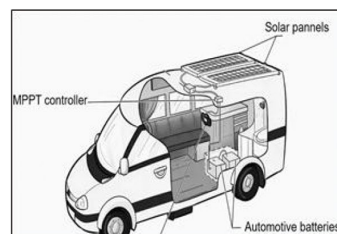
## STEP 2

Wait until the adhesive is fully cured, then connect solar panels and MPPT charge controller



## STEP 3

Connect the MPPT Charge Controller to the vehicle's batteries





# Portable Photovoltaics

Folding Solar Panel



Solar panels attached to the roof of the car



Portable solar systems; foldable solar panels, flexible solar panels, and storage unites. Skilled sewing technology can ensure the service life of the product. It is equivalent to a book when folded, useful for hiking and camping.

## Parameter

Power	100W	300W	500W
Reference voltage	18v	18V/36V	18V/36V
Standard current	5.5A	16A/8A	26A/13A
Folded size	64*56*0.6CM	120*85*2CM	119*117*2CM
Unfold size	128*56*0.3CM	240*85*1CM	238*117*1CM