

Artemide®

Solar Tree





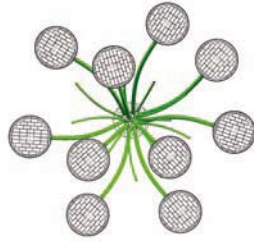


MAK, Vienna

Solar Tree, designed by Ross Lovegrove

Solar tree is a revolutionary urban lighting concept that represents a perfect symbiosis between pioneering design and cutting-edge eco-compatible technology. Solar Tree opens up new prospects for urban lighting in that it satisfies today's most pressing environmental, social, cultural and aesthetic demands.

The ability to combine innovative design with advanced technology, along with an acute sensitivity to environmental concerns make Artemide the ideal vehicle for the development of this project conceived by Ross Lovegrove, with the collaboration of Sharp Solar, the world's leading manufacturer of solar cells.



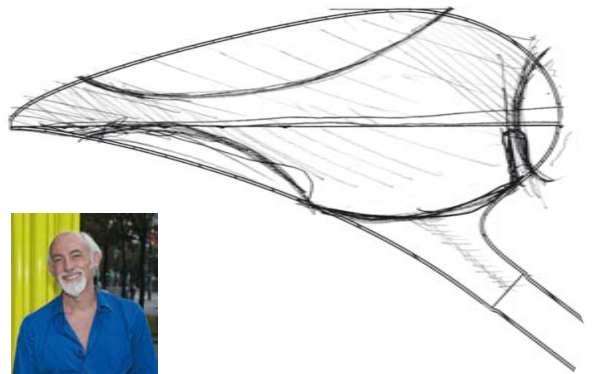
Research and experimentation on the concept of lighting; innovation and technology in the utilisation and control of light; extreme attention to eco-compatible materials and to environmental needs in general; a deeply rooted vocation for fine design: these are the values that distinguish Artemide and the principles that underlie this new concept of public lighting.

Solar Tree is the successful marriage of the most advanced technology and the aesthetic requirements of the urban environment by way of renewable energy.


Artemide has dedicated its formidable skill and commitment to realising these objectives, driven by a passion for research and sustainability and by an innate love of excellent design.



Piazza della Scala, Milan



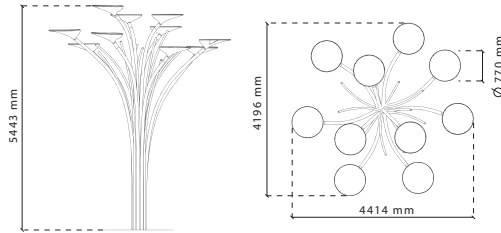
Ross Lovegrove



The product

Solar Tree draws inspiration from the organic forms of nature, reinterpreting the morphology of the tree and introducing the sensuality of the natural world into the urban context. In the words of Ross Lovegrove, "This is a project that celebrates design, nature and art and represents the DNA of our time". A sinuously elegant tree with ecologically intelligent 'fruits' – that is, the LED bubbles that light up at night powered by the sunlight accumulated during the day by solar panels.

The aesthetic refinement of the design is thus integrated with an extremely high technological content, the result of the innovative research conducted by Artemide in the deep conviction that a concrete solution to the problem of energy saving was needed



Technical info

The structure consists in curved steel poles of different diameters, with an overall height of 5.5 metres.

Each of the 10 “grass stalks” (ø 40 mm) has a 1W LED at its end protected by a lens in PMMA (polymethylmethacrylate).

The 10 heads, which are capped by photovoltaic cells, are supported by poles 76 mm in diameter; 20 white LEDs of 1 W each are situated at the bottom part of 4 of these poles on an aluminium diffuser; a PMMA lens holds them in place.

The base is made of reinforced concrete.

The electrical connection/control box is housed in plastic at the foot of the base, and consists in:

- 2 12V–240Ah batteries
- cable junction box for the 10 solar panels
- cable junction box for the 10 LED heads and 4 LED lamps
- electronic controls for battery charger
- electronic feed for connecting to public lighting grid
- electronic controls for LED heads and lamps.

Led

Power of each head: 22W
 Luminous flux of each head: 1250 lm
 Colour temperature: 6000 K

Solar Panels

Tension : 12V
 Peak power of each panel: 38W

Functioning

Solar Tree is designed to function both autonomously and in synchronisation with the public grid.

When wired for autonomous functioning (not connected to the public

electric grid), it uses the energy generated by the solar panels during the day to recharge the batteries. At dusk, which is recognised by automatically monitoring the solar panel output, the LED sources are activated and remain lit until dawn (or as long as the batteries remain charged). Solar Tree is capable of functioning for three consecutive days of cloudy or overcast weather.

When wired for coordinated functioning with the public lighting grid, it uses the energy generated by the solar panels to recharge the batteries and activate/deactivate the LED sources in synchrony with the grid, to which eventual surpluses of stored current can be relinquished. In the event of low reserves of current in the accumulators, Solar Tree automatically reduces its luminous output.

Programs

Depending on specific needs, there are 3 operating programs that can be selected by infrared remote control:

1. Prog0 (standard) ensures an average illumination of 8 lux by an internal regulator that maintains the LED sources at 25% of maximum power, from dusk to dawn (or exhaustion of current).
2. Prog1 (event1) provides the LED sources with 100% of maximum power (33 lux) from dusk to dawn (or exhaustion of stored current); reverts automatically to Prog0 at dawn.
3. Prog2 (event2) provides the LED sources with 100% of maximum power (33 lux) from dusk to dawn (or exhaustion of stored current), with the option of turning it on or off with the infrared remote; reverts automatically to Prog0 at dawn.

4 heads (80 LED) at 25% power: average illumination $E_m = 8$ lux

4 heads (80 LED) at 100% power: average illumination $E_m = 33$ lux

Note: Prog0 is designed to enable Solar Tree to perform well even during the autumn/winter period when the average daily sunlight is less plentiful.