

## THE ADVANCED SOLAR LIGHTING SYSTEM



### The best available in the market

The Soluxio is developed with world leading partners, resulting in the best solution in all minor details. Developed, engineered and manufactured in the Netherlands means that only the highest quality is delivered conform European Standards.

### Modular design

You can choose from various parts you would like integrated in the pole, making use of standard components or optional modules like a telemetry module, a GSM module or a customer specific module. The Soluxio is compatible with a broad range of luminaires and brackets.

### High-performance solar cells

The solar cells of the Soluxio, which have a long lifespan, are the best available in the market, not only because of its high efficiency (over 23%) but also because of its high temperature performance. The cells have a low temperature coefficient (equal to thin film), which means that with increasing temperature, the overall efficiency remains high.

### Cylindrical glass

Glass is superior to plastics (like e.g. Poly Carbonate) which show yellowing, degradation (by sunlight) and it scratches easily in time. The Soluxio cylindrical glass delivers the highest possible performance. The optional Anti-Reflective treatment makes sure that no glare will be visible during operation and that the energy output will be increased. Another option is a self-cleaning or dirt repellent coating which reduces the operational costs of the light pole.

### Like a conventional solar panel

The cells are directly laminated onto the cylindrical glass, like a conventional solar panel. This increases the performance significantly. No air and dirt can accumulate in-between the cells and the glass and the reliability is increased.

### Custom Design

If you have a specific pole design in mind, including different kinds of brackets, surface finishing, solar module color or electrical design etc., we are the company to contact. Powder coating, anodizing, even a golden finish of the solar module is an option.

### Circular shape

Most lighting columns have an aerodynamic, circular shape, so does the Soluxio. This offers numerous advantages. The overall resistance in deflection, torsion and buckling is much higher than for octagon, hexagon and square shapes. Also, the shape being perpendicular to the sun, from all angles, guarantees a better irradiation of the solar cells.

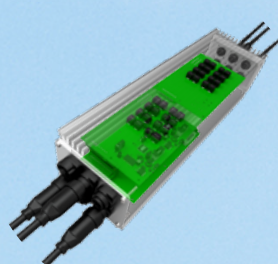
### Increased redundancy increases efficiency

Every side of the solar module is independently controlled which optimizes and increases maximum power output. Another advantage is the redundancy of each panel, if one the panels are partially damaged or broken, it does not affect the other part of the module. Also the electronic components are redundant, so if one part fails, the rest will still operate.

### Lithium batteries

Lithium batteries have many advantages compared to conventional (Lead Acid, VRLA, etc) batteries:

- Better low- and high temperature performance;
- Longer replacement timeframe (8-10 years);
- Maintenance free;
- Eco friendly (lower environmental impact than other batteries);
- No memory effect;
- The batteries can be placed inside the pole. Alternatively they can be placed next to the pole in a separate battery box in the ground.

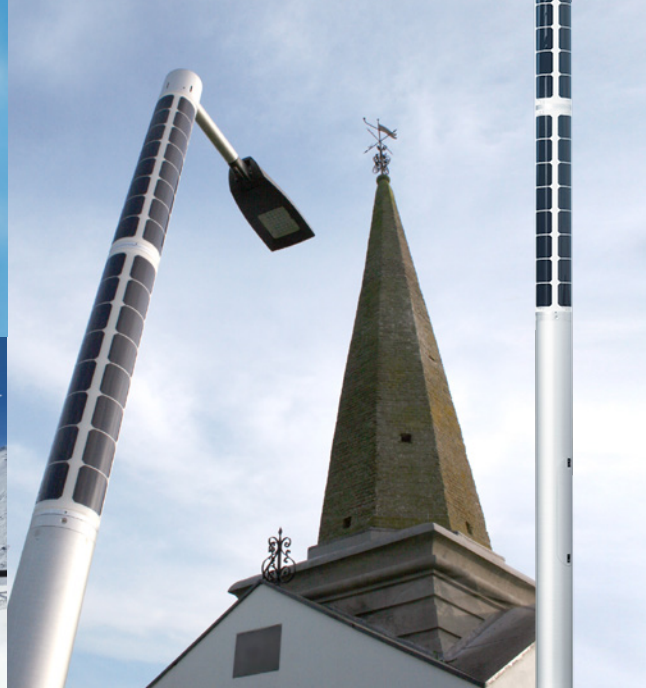


It is also possible to deliver the Soluxio with a ground piece for installation into the ground.



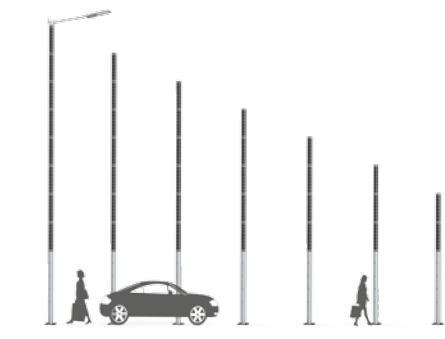
## THE ADVANCED SOLAR LIGHTING SYSTEM

The stand-alone Soluxio is the solution in areas where there is no grid or other lighting infrastructure available. This high-tech pole charges itself by making use of highly efficient integrated cylindrical solar panels. Even in case of cloudy weather, low yield or indirect sunlight, the light pole still generates the desired amount of energy.



### Sustainable and environmental friendly

Since the recycling of aluminium consumes little energy, 95% of the energy that would be consumed to make primary aluminium, is saved. Aluminium poles are completely recyclable, time after time endlessly, with no loss of quality. All Sapa columns consist of a minimum of 95% recycled aluminium. This is one of the reasons why Sapa managed to obtain a silver Cradle to Cradle® certificate.



Height	# solar modules	Max. Watt Luminaire	
		London	Dubai
4 m.	2	26	40
6 m.	2-3	40	60
8 m.	2-5	68	100
10 m.	2-7	95	140
12 m.	2-9	120	180

### Design

The aerodynamic Soluxio has a smooth design. The patented high efficient circular solar module has an exact fit to create a slick surface. This way, no dirt and sand can stick to the pole. Optionally, we can offer highly scratch resistant glass. In high-end areas, such as harbors or green urban streets, the cylindrical shaped Soluxio will fit perfectly into the surroundings. If you have any specific design requirement, please contact us and we will help you to customize the design to your needs.



### Modular system

Made of light weight aluminium extrusions, the modular structure of the Soluxio is as light as possible. Depending on the amount of energy you need, you can choose the configuration of the light pole e.g. the number of solar modules and the type of batteries. You can also choose to incorporate additional functionalities in the pole like:

- A weather station: measuring all environmental parameters;
- A pyranometer: solar irradiance;
- A CCTV camera: surveillance or webcam;
- Wireless communication: logging of parameters/internet connection;
- Motion detection: intelligent lighting control and power saving (up to 80%);
- City manager: advanced monitoring and control.

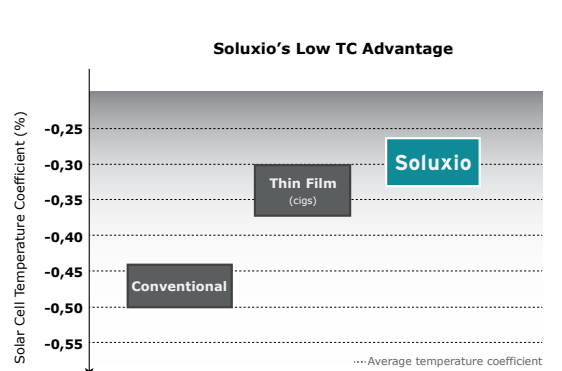
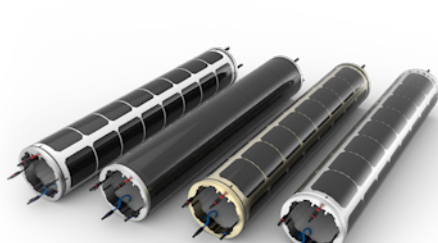


### DC-driver

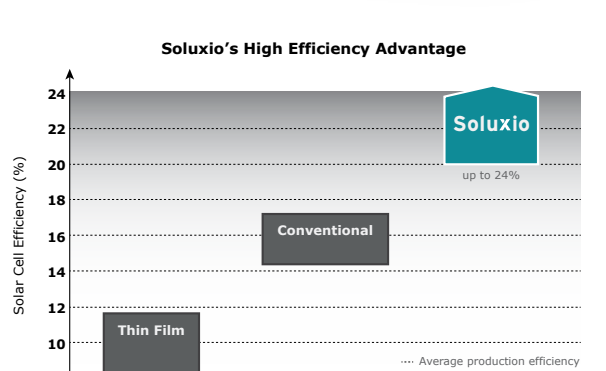
The Soluxio works with most LED luminaires that operate on a DC-driver. Luminaires that do not work on a DC-driver, can be equipped with the Soluxio DC-driver for LED luminaires. This driver is specifically designed for the Soluxio to avoid working with inefficient inverters. Please check with our sales team for more details and how to combine your luminaire with the Soluxio DC-driver.

### Solar cells

The cells integrated in the Soluxio are the best performing solar cells available in the market. Due to low temperature coefficients (- 0.30 % Power /°C, similar to thin film) and the high efficiency of the cells, our cells generate more energy at higher temperatures compared to standard c-Si solar cells. Furthermore, the solar cells used for the Soluxio conserve their initial power. Other types of cells lose 3% of power once exposed to sunlight. This innovative technology prevents light-induced degradation like conventional c-Si cells.



What this means is that for each degree over 25°C the maximum power of the panel is reduced by 0.30% (compared to 0.48 for conventional solar cells).



**Example:** On a hot day in the summer in the United Arab Emirates - where solar panel temperature can reach 65°C or higher - the amount of electricity would be 12% lower resulting in a total efficiency of +/- 20%, while for conventional panels this would be 20% lower resulting in a total efficiency of +/- 12.8%.

### Batteries

Li-ion (LiFePo4) is a high-end battery and widely used in cell phones, cameras, laptops etc. Although the investment costs in the beginning are higher, over the complete lifecycle, the price of these batteries is lower (up to 20% less) compared to Lead Acid batteries. Lithium batteries are the best to choose for the Soluxio, this is why we offer an extended warranty (see technical overview below).



### Technical details

Poles	Solar Module	Batteries	Luminaire
<b>Construction material</b> Aluminium profiles made from alloy EN-AW 6060 T66 (marine grade alloy, less than 0.1% copper content, corrosion resistant).	<b>Solar module protection</b> High performance glass. Optional: Anti-reflective (AR) and Anti-Soiling (AS) surface treatment. Soluxio glass has a higher scratch resistance compared to regular glass.	<b>Lower price</b> Up to 20% less over the complete life-cycle. Longer replacement time frame (8 - 10 years vs 1.5 - 2 years for Lead Acid). Maintenance free and Eco-friendly.	<b>Powercontrol / driver</b> Compatible with all Philips solar drivers and most 3 <sup>rd</sup> party drivers. AC power control optional (not recommended because of energy loss).
<b>Pole height</b> 4-12 meters.	<b>Finishing of the solar module</b> Standard black/white. Metal finishing on request, e.g. gold or aluminium.	<b>Lifespan of batteries</b> Up to 10 years @ 60% DOD (compared to 2 - 3 years for Lead Acid) The warranty is 3 years by default and up to 5 years (dependent on the installation conditions).	<b>LED Technology</b> The Soluxio is optimized for the use of LED lighting systems.
<b>Foundation</b> Flanged base plate or planted in soil.	<b>Power output</b> Nominal peak power output is 100 Wp.	<b>Charge efficiency</b> High turn around charge efficiency (97% vs 75% for Lead Acid batteries).	<b>DC-driver</b> This DC-driver is specifically designed for the Soluxio.
<b>Finishing of the pole</b> Powder coating or anodizing.	<b>No light-induced degradation</b> The solar cells have a very low temperature coefficient equal to thin film.	<b>Working temperature</b> Tolerates higher nominal temperature (45°C vs 30°C for Lead Acid). Better high and low temperature performance.	<b>Brand independent</b> The Soluxio can be used with several luminaire brands.
<b>Theft protected accessibility</b> Pole can be equipped with 1 or 2 doors and has a special locking mechanism to protect against theft.	<b>No light-induced degradation</b> Soluxio solar cells conserve their initial power (unlike conventional c-Si cells).	<b>Pole fitted battery packs</b> (integrated inside pole) Lithium 2-8 batteries, max. 4 (1 door) or max. 8 (2 doors) Optional: Storage under the ground.	<b>Dimmable</b> The system has a built-in solution to dim the light.
<b>Multi purpose pole</b> Apart from lighting, the poles can also be used as flagpole, camera pole or for carrying measurement equipment like a weather station.	<b>PV Technology</b> Patented flexible silicon solar cells.	<b>Discharge</b> 4x More discharge cycles (2000 cycles Li-ion vs 400-500 cycles Lead Acid @ 80% DOD) Deeper discharge tolerance (95% vs 50% for Lead Acid).	<b>Luminaires &amp; more info</b> For an overview of possible luminaires and more information about the Soluxio, you can visit: <a href="http://www.soluxiolighting.com">www.soluxiolighting.com</a>



[www.soluxiolighting.com](http://www.soluxiolighting.com)

Notes:  
 - More technical details are available in our technical data sheet, to be requested.  
 - As every Soluxio pole needs a case by case calculation and because of the numerous possibilities, we do not have a price list available.