



Ulitium Lightkit  
User Manual

Ulitium Lightkit  
Betriebsanleitung

Ulitium Lightkit  
Manuel d'Utilisation

Ulitium Lightkit  
Instrucciones de Uso



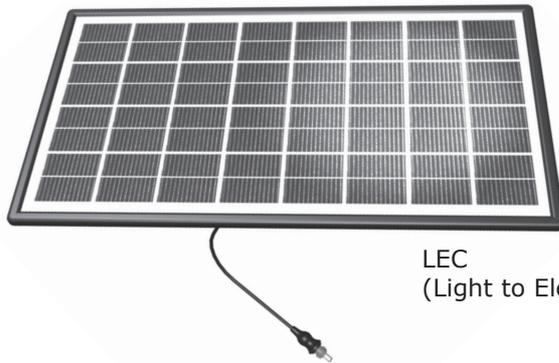
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## Overview

The Sundaya Lightkit system consists of very simple modular parts that you can connect together to form an expandable, energy-efficient lighting installation.



LEC  
(Light to Electricity Converter)

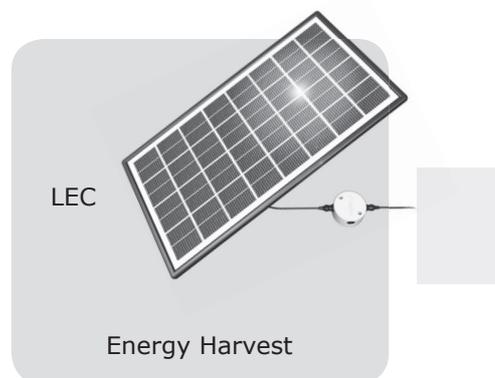
Bayonet Plug



## How does it work?

The concept of the basic Sundaya Lightkit is simple.

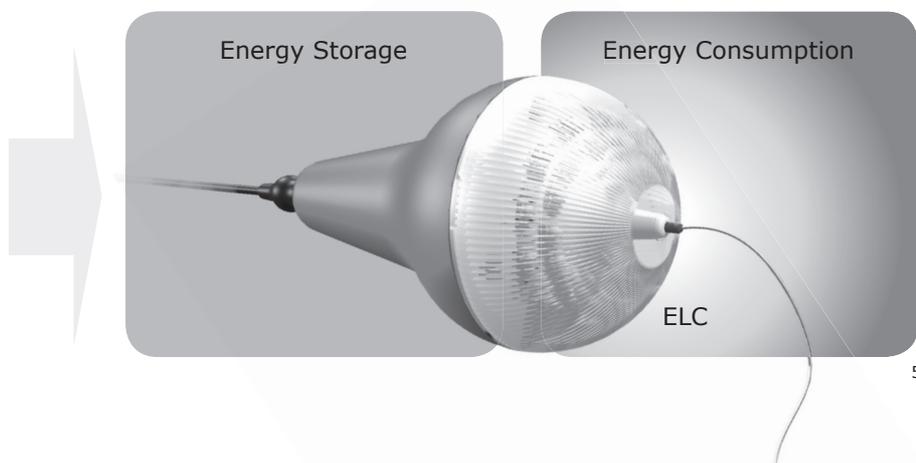
During the daytime, energy is harvested from the sunlight using the LEC (Light to Energy Converter), and converted into electricity. This electrical energy is then passed through the cables and Hub4 in your installation, to the Ulitium lamps.



When not in use, the Ulitium lamp will store this electric energy, and then convert it back to light whenever it is switched on. It is considered an ELC (Electricity to Light Converter).

You can have as many LECs and ELCs in your installation, as long as there is a good balance between energy harvested and energy consumed every day.

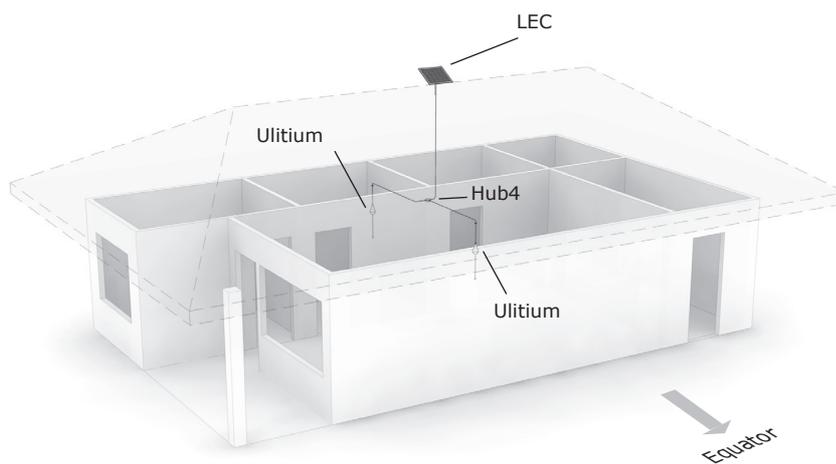
The harvesting capacity of the LEC in every Sundaya Lightkit has been chosen to be in good balance for the number of energy consumers included in the kit. If you want to add more energy consumers (lamps, TV, laptop computer, etc.) please also consider installing additional LECs to maintain this energy balance.

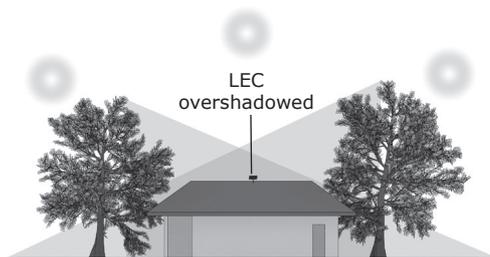


## Planning the installation

Before you begin installing the system, please consider where you would like to suspend the lighting, and the LEC's location on or near the roof.

The LEC needs to be able to face the equator, so choose the correct side of the roof.



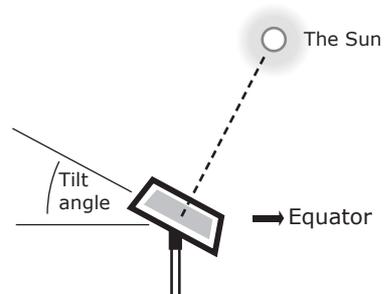
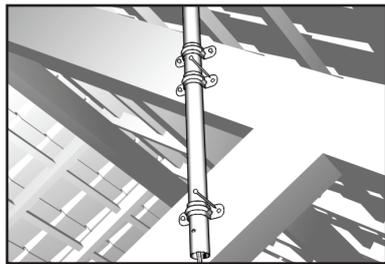
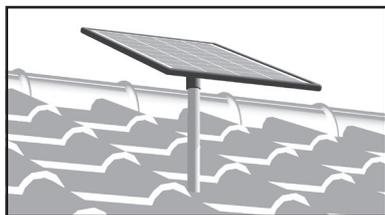


The LEC must not be overshadowed by trees or buildings throughout the day.

Make sure the total distance from the LEC to the Hub4 and the energy consumers will not exceed the length of the cables. The Hub4 should be placed above the ceiling, at roughly equal distances to all the devices.

Judge the best placement and height for your Ulitium to get the light distribution you want for the room. See the chapter on how to switch on the Ulitium if you want to study beforehand its light distribution in the room.





## Installing the LEC

The LEC is designed to be mounted on a rigid pole. An aluminium or galvanized pipe of diameter 26 mm is ideal, but a thick PVC pipe is acceptable. The pole should be mounted on the rooftop, clamped or tied to the truss of the roof. If you cannot mount it there, you can also nail the pole on the outer wall of your house that is facing the equator, as long as the LEC is not overshadowed.

It is very important that the LEC be positioned facing the equator. If necessary, also adjust the LEC's tilt angle, so that at 12 o'clock the sun's rays should fall straight on the LEC's top surface for an optimal sunlight energy harvest.

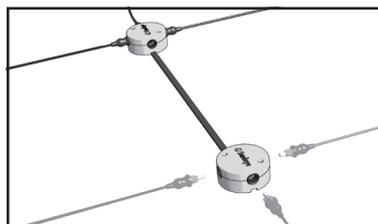
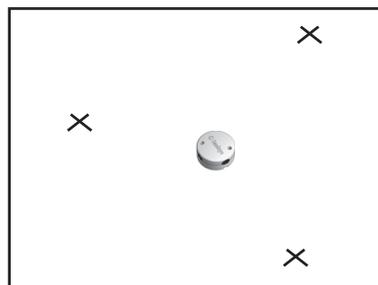
## Connecting the Hub4

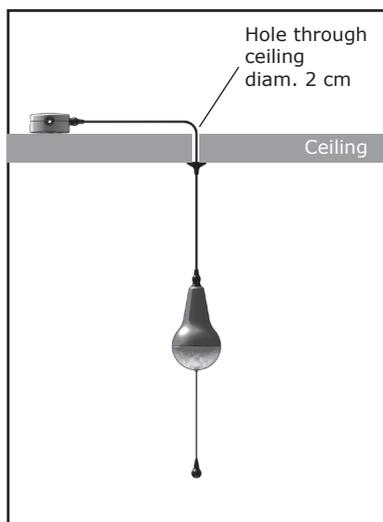
Under the roof, place the Hub4 somewhere between the future locations of the Ulitium lamps.

Insert the Bayonet Plug of the cable from the LEC, to one of the four ports on the Hub4. Twist clockwise the Bayonet Plug to lock it in place.

(For 4 Light kits, connect one Hub4 to another using the extra cable with Bayonet Plugs).

OPTIONAL: for longer distances, you can also connect two Hub4's with an optional Sundaya DC cable, wired to the terminals underneath each Hub4.

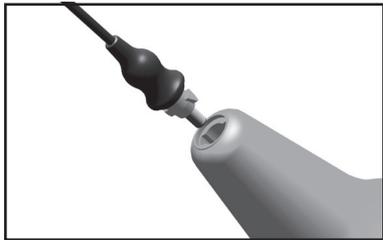




## Installing the Ulitium

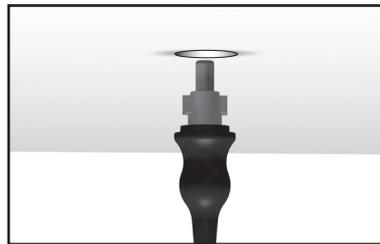
The Ulitium is designed to be suspended from the ceiling.

At precise location on the ceiling where you have planned to suspend the Ulitium, drill a hole 2 cm in diameter, barely large enough to allow a Bayonet Plug to pass through.



Insert Bayonet Plug of the cable provided, into the port on top of the Ulitium.

Pass other bayonet plug and rest of the cable through the hole in the ceiling you just made.



Slip cable into Ceiling Cap provided, through a slit on its side.



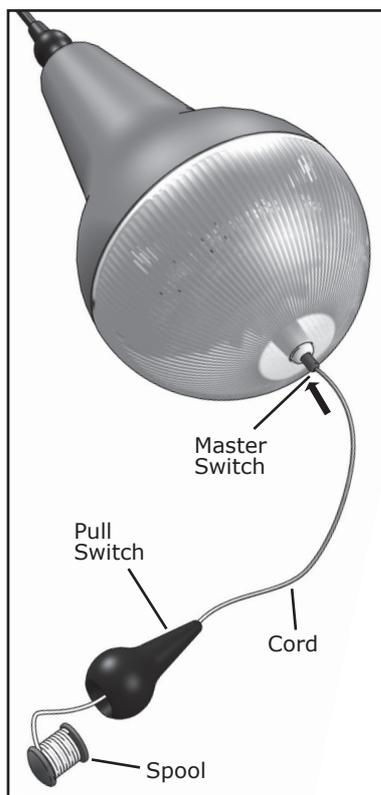
Maintain the Ulitium at desired height. Then fasten Ceiling Cap to the ceiling with screws, covering up the hole on the ceiling.

Connect the bayonet plug that has been passed through the ceiling, to any available ports on the Hub4.



Repeat the above steps for all lamps in the kit\*.

\*) for Lightkits 2,3 and 4.



## Operating the Ulitium

When the Ulitium is shipped out of the factory, the electronic circuitry is not yet activated.

Press once the Master Switch at the bottom of the Ulitium to activate the unit.

(When storing the lamp away for a long time or during transportation, do not forget to deactivate the circuitry by pressing again the Master Switch).

The cord length can be adjusted by pulling out the Spool inside the Pull Switch, and then winding or unwinding the cord.

To switch on the light, pull down once on the Pull Switch.

The lamp brightness is set in progressive steps, the first being at 100%.

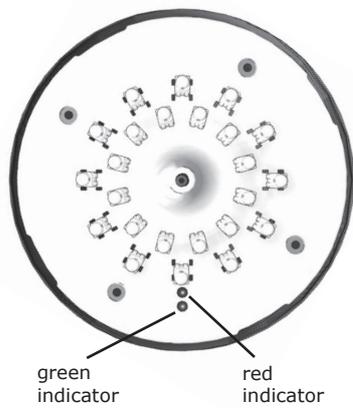
Pull once again to dim the light to 50% brightness.

Another pull on the Pull Switch will dim the light down to 10% brightness.

Pull again one more time to switch off the light.

So, to get to the desired brightness after turning on the lamp, cycle through by pulling down the Pull Switch several times.





When the Ulitium is storing any unused electrical energy, the green indicator light inside the grated plastic lens will start to blink.

Once it is full and can store no more electricity, the red indicator light will light up.

If the Ulitium has no more electricity in its storage, it will not be able to provide lighting. Try using it at lower brightness settings, or allow it to store electricity back to full the next day, before using it again.

Avoid wasting energy. Dim or turn off the lights when not needed. During the day when it is already bright, avoid using the Ulitium, and just let it store the energy harvested.

## Troubleshooting

If for some reason, you tried switching on a Ulitium and it does not want to light up, please follow these troubleshooting steps:

1. Push the Master Switch, and then try switching on again.
2. If during daylight the green indicator is blinking, give the lamp some time to store enough energy before using the lamp again in the evening.
3. Try unplugging the Bayonet Plug on the Ulitium and plugging it back in, before attempting to switch on the lamp again. This will reset the Ulitium's protection circuits.
4. Check the cabling from the LEC all the way to this Ulitium, and verify all plugs are connected, to make sure the Ulitium has been getting energy from the LEC during the day. If a cable is broken or damaged at some point, replace.

## Energy Accounting

All Sundaya products are rated in Joules for energy harvest, storage and consumption, and Lumens for light output of lamps.

### Joule

Joule is the unit to quantify energy (all forms of energy can be quantified in Joule). The higher the Joule number, the higher the energy amount.

### Lumen

Lumen is the unit to quantify total amount of light emitted by a lamp. The higher the Lumen number, the more light it emits.

For more information about energy education, please visit [www.kajul.org](http://www.kajul.org).

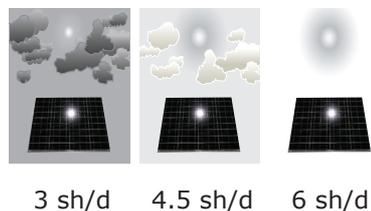
## Energy Harvest

The Sundaya solar panel range is named LEC (light to Electricity converter) followed by a number that indicates the amount of electrical energy (in kiloJoules) that it can harvest at 4.5 sun-hours per day (4.5 sunhours is the average in tropical regions).

During bad weather or cloudy days the sunhours can go as low as 3 sunhours per day, and in very bright days as high as 6 sunhours per day.

The next table gives the range of daily energy harvested from the available LEC range.

## LEC200





Range	Model	Energy Output			Electrical Characteristics					Mechanical Details			
		@3 sh/d (kJ/day)	@4.5 sh/d (kJ/day)	@6 sh/d (kJ/day)	I <sub>mpp</sub> (A)	V <sub>mpp</sub> (V)	P <sub>m</sub> (J/s)	I <sub>sc</sub> (A)	V <sub>oc</sub> (V)	Length (mm)	Width (mm)	Height (mm)	Weight (kg)
Mini Panel Range	LEC50	33	<b>50</b>	67	0.19	16.5	<b>3</b>	0.20	19.5	168	278	9	0.9
	LEC100	67	<b>100</b>	133	0.37	16.5	<b>6</b>	0.40	19.5	278	278	9	1.2
	LEC150	100	<b>150</b>	200	0.56	16.5	<b>9</b>	0.61	19.5	388	278	9	1.5
	LEC200	133	<b>200</b>	267	0.75	16.5	<b>12</b>	0.81	19.5	498	278	9	1.9
Medium Panel Range	LEC300	200	<b>300</b>	400	1.12	16.5	<b>19</b>	1.21	19.5	330	735	37.5	3.4
	LEC450	300	<b>450</b>	600	1.68	16.5	<b>28</b>	1.82	19.5	450	735	37.5	4.4
	LEC600	400	<b>600</b>	800	2.24	16.5	<b>37</b>	2.42	19.5	570	735	37.5	5.4
	LEC750	500	<b>750</b>	1000	2.81	16.5	<b>46</b>	3.03	19.5	690	735	37.5	6.4
	LEC900	600	<b>900</b>	1200	3.37	16.5	<b>56</b>	3.64	19.5	810	735	37.5	7.4
	LEC1200	800	<b>1200</b>	1600	4.49	16.5	<b>74</b>	4.85	19.5	1010	735	37.5	9.1
	LEC1500	1000	<b>1500</b>	2000	5.61	16.5	<b>93</b>	6.06	19.5	1210	735	37.5	10.7
	LEC2000	1333	<b>2000</b>	2667	7.48	16.5	<b>123</b>	8.08	19.5	1430	735	37.5	12.6

## Energy Consumption

Ulitium200 Light Output, Energy Consumption and Operating Hours.

Master Switch Position	Switch Position	Light Output (%)	Light Amount (Lumen)	Energy Consumption (kJ = kilo-Joule)	Maximum Operating Hours without refill (based on 60kJ internal storage)
ON	1	100	200	10 kJ per hour	6 hours
	2	50	100	5 kJ per hour	12 hours
	3	10	20	1 kJ per hour	60 hours
	4 (OFF)	-	-	2 kJ per day	30 days *
OFF	-	-	-	5 kJ per month	12 months **

\* The electronic charge protection circuit inside the lamp also consumes energy (although a very small amount) when the lamp is off. Therefore it is recommended to switch off the Master Switch when your Ulitium is not going to be used for a long time.

\*\* The Energy Storage have a self discharge of +/- 6-7% per month. Therefore it is recommended to let the lamp refill back to full at least every 6 months, even when the Master Switch is in the OFF position.

## What next?

This product range is just the beginning of an exciting series of innovative products.

You can expand this basic installation with:

- other Lightkits,
- an STV with more lights,
- a laptop computer,
- more LECs,
- an AC to DC Converter to use along with grid electricity,
- more Ulitium,
- other accessories,
- or anything that will become available in this product range.

The possibilities are unlimited.

Thank you and enjoy your **Energy Independence!**

