

Ulitiu Lightkit User Manual

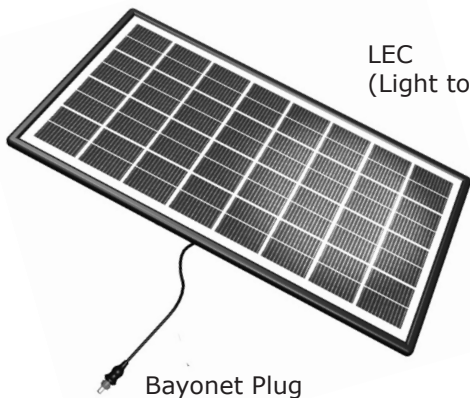


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Overview

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



Ulitium

Hub4



OR

Hub5



PhoneStick



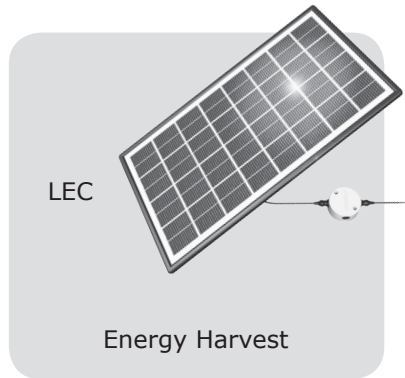
Cable with
Bayonet Plugs



How does it work?

The concept of the basic Sundaya Lightkit is simple.

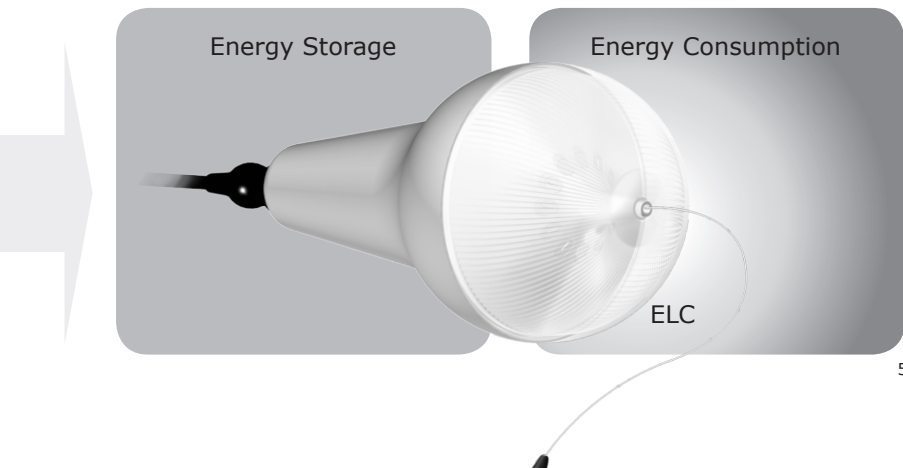
During the daytime, energy is harvested from the sunlight using the LEC (Light to Energy Converter), and converted into electricity. This electrical energy is then passed through the cables and Hub4 in your installation, to the Ulitium lamps.



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.

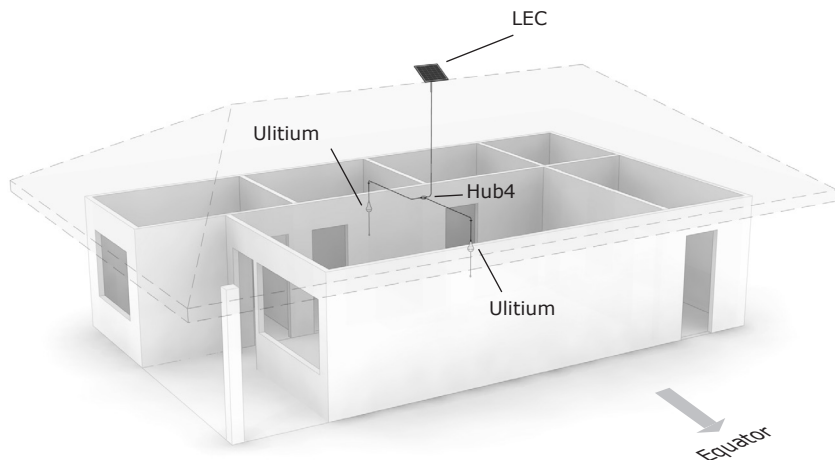
The harvesting capacity of the LEC in every Sundaya Lightkit has been chosen to be in good balance for the number of energy consumers included in the kit. If you want to add more energy consumers (lamps, TV, laptop computer, etc.) please also consider installing additional LECs to maintain this energy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

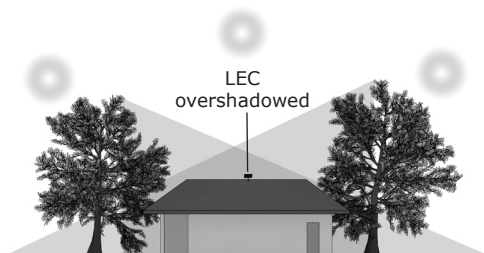


Planning the installation

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 face the equator, so choose the correct side of the roof.

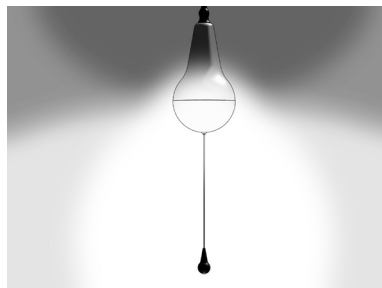




The LEC must not be overshadowed by trees or buildings throughout the day.

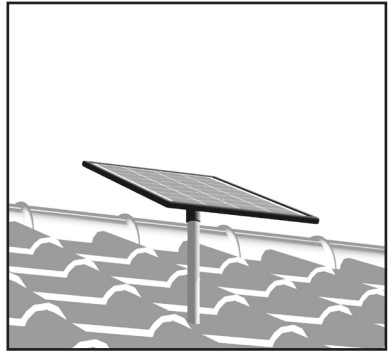
Make sure the total distance from the LEC to the Hub4 and the energy consumers will not exceed the length of the cables. The Hub4 should be placed above the ceiling, at roughly equal distances to all the devices.

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.



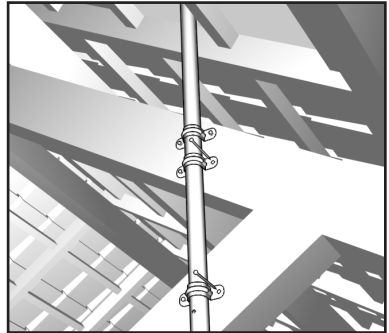
Installing the LEC

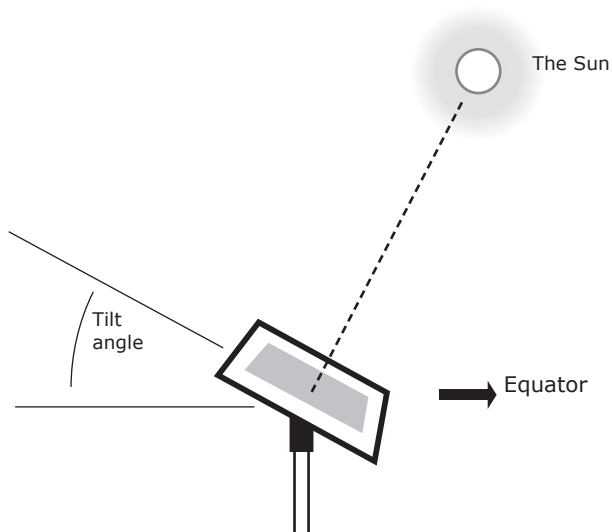
The LEC is designed to be mounted on a rigid pole. An aluminium or galvanized pipe of diameter 26 mm is ideal, but a thick PVC pipe is acceptable.



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.

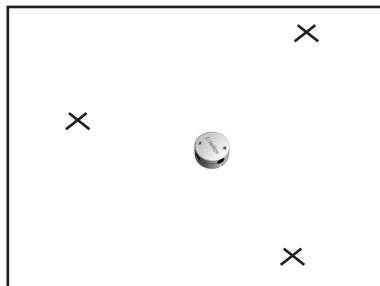




It is very important that the LEC be positioned facing the equator. If necessary, also adjust the LEC's tilt angle, so that at 12 o'clock the sun's rays should fall straight on the LEC's top surface for an optimal sunlight energy harvest.

Connecting the Hub4

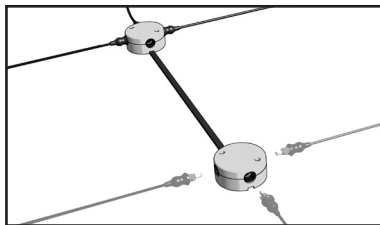
Under the roof, place the Hub4 somewhere between the future locations of the Ulitium lamps.



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



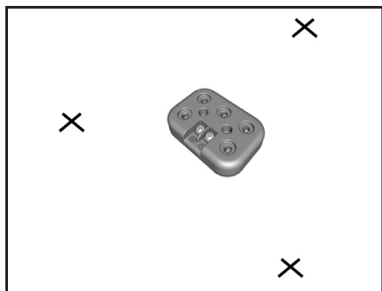
(For 4 Light kits, connect one Hub4 to another using the extra cable with Bayonet Plugs).



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

Connecting the Hub5

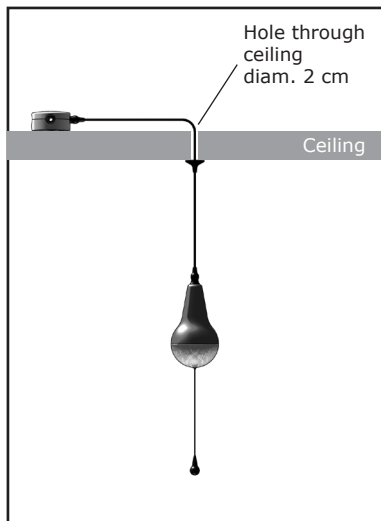
Under the roof, place the Hub5 somewhere between the future locations of the Ulitium lamps.



Insert the Bayonet Plug of the cable from the LEC, to one of the five ports on the Hub5.



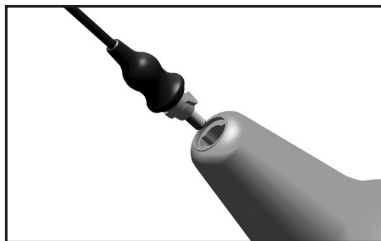
OPTIONAL: for longer distances, you can also connect two Hub5's with an optional Sundaya DC cable, wired to the terminals underneath each Hub5.



Installing the Ulitium

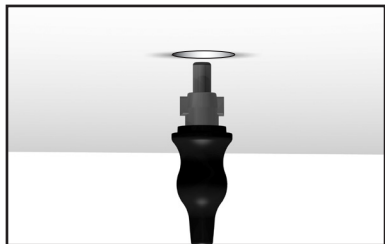
The Ulitium is designed to be suspended from the ceiling.

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



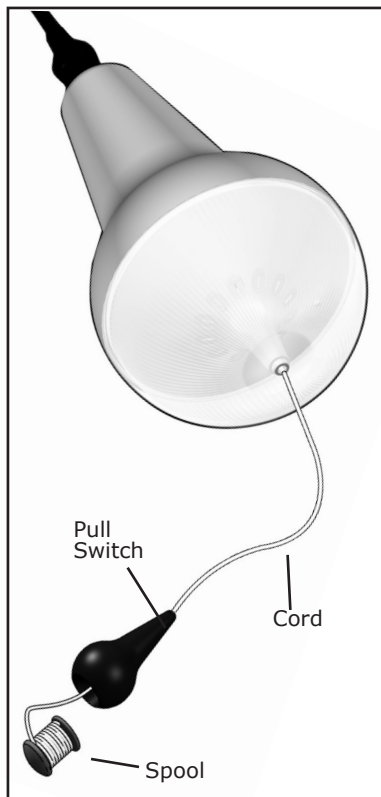
Maintain the Ulitium at desired height. Then fasten Ceiling Cap to the ceiling with screws, covering up the hole on the ceiling.

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.



Adjusting the Pull-cord Length

The Pull-cord of the Ulitium can be adjusted according to your needs up to maximum 1 meter length.

The Spool inside the pull cord hanger can be taken out to unwind the pull cord and in that way increase the pull cord length.

If the pull cord is too long you can wind the excess cord length back on the spool again.

On/Off Switching of Ulitium and Energy Indicator

The On and Off switching of the Ulitium is done through a short (less than 100ms) pull on the Pull-Cord.

When lamp is OFF; a short of the pull-cord will switch the Lamp ON
When lamp is ON; a short of the pull-cord will switch the Lamp OFF



Energy Content Indicator

One second after the lamp has been switched off a green led will indicate the energy content as follows:

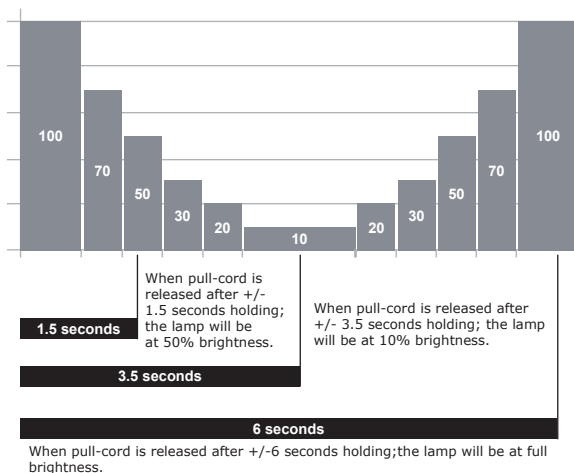
- 1 blink = 0 to 20%
- 2 blinks = 20 to 40%
- 3 blinks = 40 to 60%
- 4 blinks = 60 to 80%
- 5 blinks = 80 to 100%

Note: When energy content in the lamp is too low; the lamp will automatically go off and indicate that energy is finished by blinking the lamp 3 times. In this case you have to get the Ulitium recharged first before being able to use again.

Dimming the Ulitium

The Dimming of the Ulitium is done through pulling the pull-cord and holding it until the desired brightness is achieved.

When you continue to pull the cord; the Ulitium will continue to step down and step up in brightness according to the below diagram.... 5 step down5 steps up



Troubleshooting

If for some reason, you tried switching on the Ulitium and it does not want to stay switched on, please follow these troubleshooting steps:

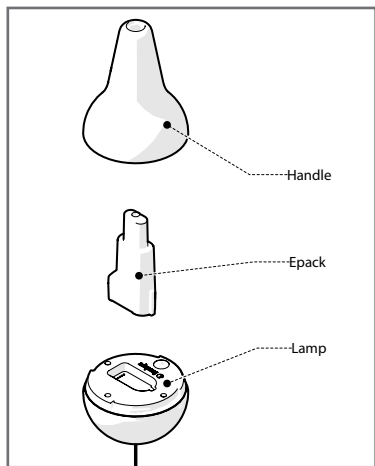
1. Ensure the Switch has been pulled in the correct manner.
2. If the Ulitium only stays on for a few seconds, it no longer has enough energy to operate. Allow it to recharge sufficiently during the day before using it again in the evening.

If during daylight the lamp should be recharging but the green indicator is not blinking:

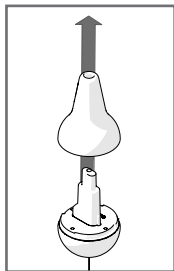
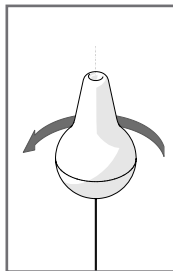
1. Ensure the LEC is facing in the right direction, and not overshadowed by trees or buildings.
2. Check the cabling from the LEC all the way to the Ulitium, and verify all plugs are connected, to make sure the Ulitium has been getting energy from the LEC during the day. Replace any damaged cable or plugs with original spareparts.
3. If still not recharging, bring the Ulitium along with the warranty card to the nearest Sundaya Service Center.

Replacing the Epack

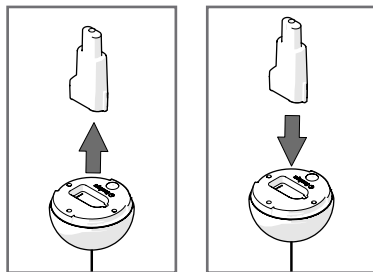
In case it has been established that the Epack inside Ulitium is faulty, it can be replaced easily through the following method:



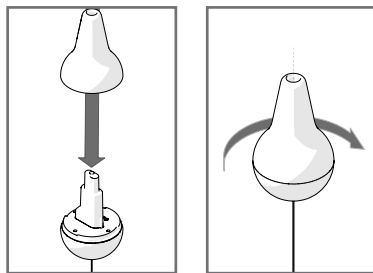
1) Turn the Ulitium handle anti-clockwise and take off the handle



2) Pull out the Epack and insert the new Epack



3) Put the handle back in place and twist it clockwise back in place to secure the handle and Epack again



4) Your Lamp should work again.

Warning: There are no serviceable parts inside the Epack and unauthorized opening of the unit could be dangerous and will void the warranty. Please do not throw the Epack in normal household waste disposal but return the Epack to a Service center for proper waste disposal and recycling of the useful materials in an environmentally friendly and responsible way.

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 the 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.

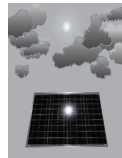
Energy Harvest

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 sun-hours is the average in tropical regions).

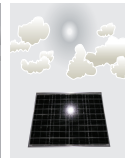
During bad weather or cloudy days the sun-hours can go as low as 3 sun-hours per day (sh/d), and in very bright days as high as 6 sh/d.

The table on page 18 gives the range of daily energy harvested from the available LEC range.

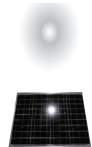
LEC200



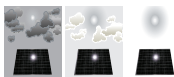
3
sun-hours/
day
(sh/d)



4.5
sun-hours/
day
(sh/d)



6
sun-hours/
day
(sh/d)



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

Energy Consumption

Ulitiu200 Light Output, Energy Consumption and Operating Hours.

Switch Position	Light Output (%)	Light Amount (Lumen)	Energy Consumption (kJ = kilo-Joule)	Maximum Operating Hours without refill (based on 60kJ internal storage)
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
Off (100%)	-	-	15 J per day	10 years
Off (LVD)**	-	-	15 J per day	6 months

* For a fully-charged Ulitiu, at 100% brightness setting the operating hours can exceed 6 hours, because the Ulitiu will gradually dim itself (Autodim) to allow an extra amount of operating hours.

** After the Ulitiu switches off by itself because of a Low Voltage Disconnect, it should be recharged immediately. If left uncharged for more than 6 months, the battery pack may suffer damage, and no longer be rechargeable.

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,
- JouleStick30,
- JouleBox,
- more LECs,
- 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!**



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