

Ulita Lighting System

Instructions

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Note: The Sundaya Ulitium and Ulita lights are incompatible with each other. Whereas the Ulitium Hub4 connects to a solar panel, the Hub4 for a Ulita system must connect to a 12 volt battery. If you wish to expand a Ulitium lighting system you must add more Ulitium lights and not Ulita lights and vice versa.



Overview

The Sundaya Ulita Lighting system looks the same as the Sundaya Ulitium Light Kit, but is significantly different due to the fact that there are no batteries and solar regulators built into the lights. This means that they will require an external battery bank and an external regulator. It is very easy to add the Sundaya Ulita lights to an existing 12 volt solar power system. As with the Ulitium components, the Ulita system consists of very simple modular parts that you can connect together to form an expandable, energy-efficient lighting installation.

How does it work?

The concept of the basic Sundaya Ulita system is simple. It can be added to an existing 12 volt power system by connecting a Hub4 to the 12 volt load connections of the battery bank of the power system. That power system may be charged with solar panels, micro-hydro electric generator, wind turbine or battery charger connected to the mains or a petrol or diesel generator. This electrical energy is then passed through the cables and Hub4 in your installation, to the Ulita lamps.

The Ulita lamps only use 0.25 amps at 12 volts. Thus, if you use these lights to replace existing lights in an existing power system, your system will cope better than it did with the previous lights. You can have as many Ulita Lights in your installation as you like, as long as the charging source puts in more energy than you use.

Planning the installation

Before you begin installing the system, please consider where you would like to suspend the lighting in relation to existing 12 volt terminals that you can connect into.

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

The Hub4 should be placed above the ceiling, at a location such that the distance to each Ulita suits the lengths of the available cables. The cable supplied with each Ulita is 4.8 metres in length. 3.5 metre and 6 metre cables are also available.

Connecting the Hub4



Under the roof, place the Hub4 somewhere between the future locations of the Ulita lamps. You will need some cable to connect between a suitable 12 volt terminal connected to the existing battery power system and the two screws underneath the hub. Use cable that is not less than 1mm² and not greater than 5mm² (cross sectional area) and is clearly marked for polarity (+ve and -ve). To make it easier to connect the cable to the screws underneath the hub, it is good to crimp appropriate size lugs (preferably forked) onto the cable which will allow you to loosen the screws and slip the open end of the forked lugs under the screws before re-tightening. The positive screw will have a row of "+" symbols embossed in the plastic above and below it.

Installing the Ulita

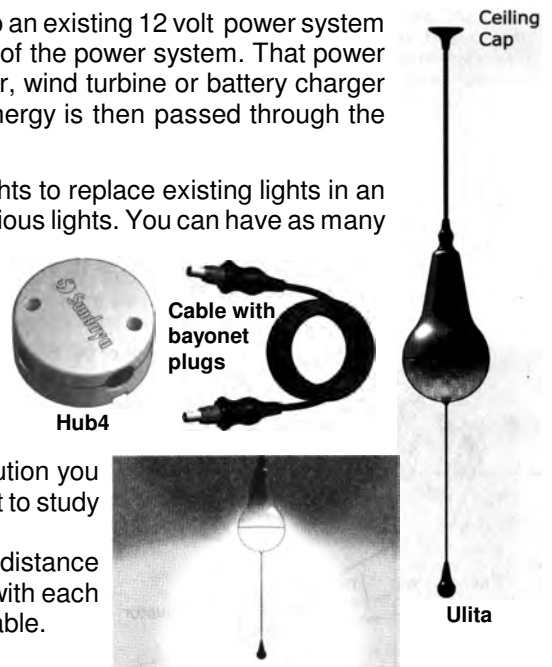
The Ulita is designed to be suspended from the ceiling.

At the precise location on the ceiling where you have planned to suspend the Ulita, 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 Ulita. Twist the Bayonet Plug clockwise to lock it in place. 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 Ulita 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*.





Operating the Ulita

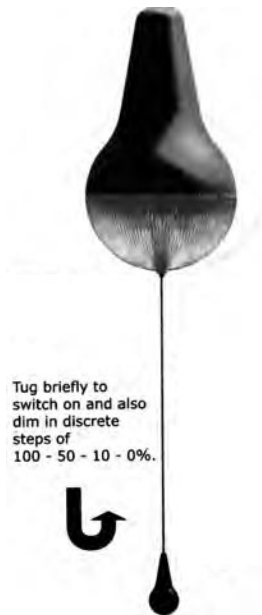
Observe the Cord Pull Switch hanging from the Ulita. Inside the Switch there is a Spool for adjusting the Cord height. There are 2 different modes of pulling the Switch: a brief tug and a sustained pull.

To turn ON the Ulita, tug the Pull Switch briefly, and the lamp will gradually shine to full brightness. If the Switch is tugged again several times in succession, the brightness will dim in discrete steps from 100% to 50%, 10%, **OFF**, **ON** again, and so forth.

Troubleshooting

If for some reason, you tried switching on the Ulita 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 Ulita only stays on for a few seconds, it no longer has enough energy to operate. Allow the battery bank to recharge sufficiently before using it again in the evening.



Energy Accounting

Battery storage is rated Amp-hours or in Watt-hours (amp-hours multiplied by battery voltage). The light output of lamps is rated in Lumens.

Watt-hours is the unit to quantify energy (all forms of energy can be quantified in Watt-hours). The higher the Watt-hours number, the higher the energy amount. 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. The Ulita 200 uses about 0.25 amps (3 watts) at 12 volts at full brightness. The Ulita 400 uses about 0.5 amps (6 watts) at 12 volts at full brightness. A Ulita 200 turned on for 6 hours per day at full brightness would thus use 1.5 Ah (amp-hours).

Energy Harvest

If you are designing and installing a small solar lighting system from scratch, you will need to make sure that you harvest and store sufficient energy to keep up with your expected usage. The amount of electrical energy that is stored is commonly measured in Watt-hours. At an average charge rate of 1 amp and at 4.5 peak sun-hours per day (4.5 peak sun-hours is the average in tropical regions) you have a total energy input of 4.5Ah or 54 watt hours (Ah x 12 volts). 1 peak sun is the average peak solar light energy falling onto a flat surface inclined towards the sun on a sunny day. The nominal peak sun value is 1kW per square metre. Thus, if you total the solar energy for one day and the result is the same as 1kW for 4.5 hours, we say that on that day the total radiation equals 4.5 peak sun hours. A 20W solar panel on a sunny day would produce about 1.25 amps. Over the day you can thus expect it to deliver $1.25 \times 4.5 = 5.625$ Ah. You can expect the battery to be about 90% efficient. Thus you can expect the available amp-hours from that day's sunshine to be about 5Ah.

During bad weather or cloudy days the peak sun-hours can go as low as 1.5 peak sun-hours per day (psh/d), and on very bright days as high as 6 psh/d. You can purchase Hub4, Ulita lights and Ulita cables individually.

If you need a system designed to meet your requirements, please contact:



RAINBOW POWER COMPANY LTD

A.B.N. 74 003 523 420

1 Alternative Way, Nimbin, NSW 2480, Australia
 phone: (02) 6689 1430 fax: (02) 6689 1109
 international: phone: +61 2 6689 1088 international: fax: +61 2 6689 1109
 sales@rpc.com.au www.rpc.com.au