Lipo Rider Pro

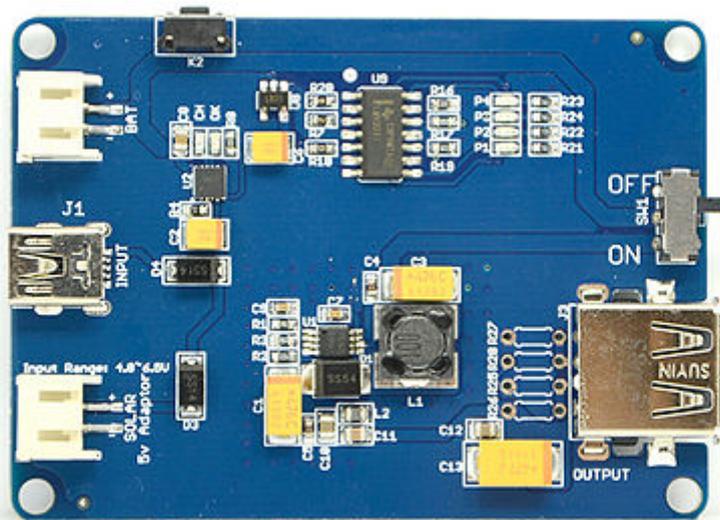## Introduction

Power your favourite electronic kit with green energy! The LiPo Rider Pro is a promotion of [Lipo Rider](#).It supply heavier load output(1A peak) than Lipo Rider. The LiPo Rider Pro board allows you ride the solar wave to run your favourite 5V device. The LiPo Rider Pro board is the ideal green power solution for your outdoor sensor design. Attach the LiPo Rider Pro board to your sensor board and it can run on solar power forever! It can also be used to charge mobile phone.

The LiPo Rider Pro is extremely affordable and easy to use. No programming is required. Plug it in and it works. The internal charger IC handles all the power flow between the various components.

In case solar power is not sufficient, the mini USB port allows you to charge your lithium battery through USB. It can also be used to program your kit without detaching the LiPo Rider Pro board.

The LiPo Rider Pro can be purchased as a separate board or as a kit (LiPo Rider Pro + Lithium Battery + Solar Panel) from [Seeed Studio](#).

Features

- Maximum 1A load output
- Battery and Solar panel connector is JST 2.0
- Stable 5V USB power supply regardless of source
- Charge/Recharge algorithms built into chip
- Charge Lithium Polymer Battery through solar power or USB
- Stable supply voltage through either lithium battery or USB

- 2 x USB ports let you program your kit while charging your Lithium battery
- LED indications for battery full or charging states
- Scalable to multiple lithium batteries and large/multiple solar panels through simple end-user modifications
- 4 green LED instruct quantity of electricity of lithium battery
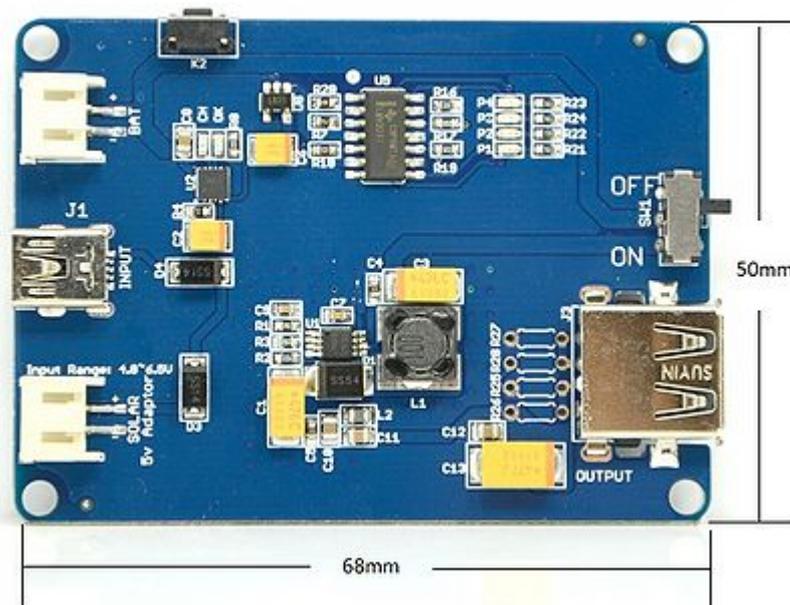
Application Ideas

- Green Power and backup supply for distributed outdoor sensor network
- Charger for Lithium batteries
- Charger for mobile phone

Cautions

- The LiPo Rider Pro has different connectors from LiPo Rider v1.0, the former is JST 2.0 and latter is JST 2.54.
- Live exposed electronic components
- The board may get hot when supplying large loads
- Potential short circuit or electric shock, especially if device gets wet when placed outdoors for solar power collection

Dimensions

The dimensions of LiPo Rider Pro is like the 6A Lithium Polymer Battery

Specification

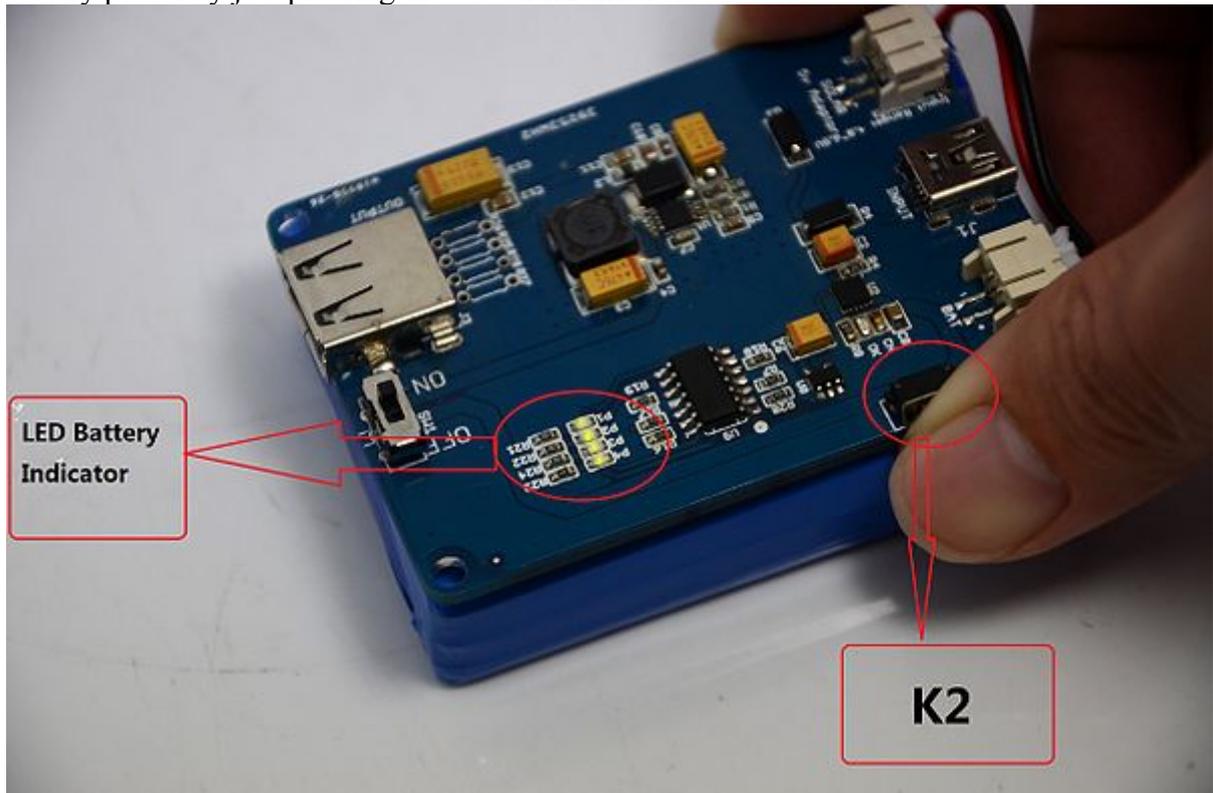| Items	Min	Norm	Max
V_{in} Solar	4.8V	5.0V	6.5V(10s)
I_{charge} (R_{Iset}=3.9kΩ)	400mA	500mA	600mA
I_{load}	0mA		1000mA
V_{batt}(R_x=0Ω)	4.2V		
$V_{source\ USB}$	5.0V		
$V_{destination\ USB}$	5.0V		

Pin definition and Rating

Pin Instruction and LED Statement

CH pin level(Red LED state)	OK pin level(Green LED state)	Statements
low level(on)	high level(off)	Charging
high level(off)	low level(last on)	Complete
pulse signal(flash)	pulse signal(on)	The battery isn't exist
high level(off)	high level(off)	Two situations : • Input voltage lower than gate voltage • The input voltage lower than battery voltage

LED Battery Indicator

The LiPo Rider Pro has four LED battery indicators like the cell phone,and you can see the battery power by just pressing the button K2 like below:

LED battery indicator parameter

Numbers of lighting up	Quantity of electricity
4	90~100%
3	60~90%
2	30~60%
1	10~30%
0	0~10%

Usage

Example

Outdoor Sensor Device Power Supply

One important application of the Lipo Rider Pro board is as an affordable power supply for outdoor sensors. The outdoor sensor device will be powered by the lithium battery supplemented by the solar panel. Please note that it is not recommended to run the outdoor sensor ONLY on solar power, as this may vary during the day and may cause the sensor to reset / power down unexpectedly. In this case, the device is running in "USB Mode".

If a firmware reprogram for the outdoor sensor device is required, simple connect the mini USB port to your PC which will put the device under "Program Mode" as explained above.

Larger/multiple batteries and/or solar panels can be used, but only with end-user modifications.

Charge Lithium Polymer Battery through solar power