

Pi-UpTimeUPS – UPS and power mobility for Raspberry Pi

Key Features

- Provides UPS functionality for Raspberry Pi.
- UPS 5V & 3.3V for the Raspberry Pi.
- Uses one or two 18650 batteries. Includes battery management.
- Reset switch for rebooting the Pi. An external reset switch can also be connected.
- Python code shuts down the Raspberry Pi when battery is low.
- Optional add-on Pi-UpTimeUPS-BO (break-out) board for ADC, 3.3V UPS, 5V UPS and other capabilities.

A Raspberry Pi is tethered to the wall power outlet. It needs the power to operate. When the Raspberry Pi needs to be moved from one location to another, it needs to be shut down and rebooted. If the power fails, the Raspberry Pi shuts down, without a proper shutdown sequence, sometimes with catastrophic after effects. Pi-UpTimeUPS provides clean, stable, reliable uninterruptible (UPS) power to the Raspberry Pi. Pi-UpTimeUPS provides power mobility for the Raspberry Pi.



Install two 18650 batteries¹ in the Pi-UpTimeUPS and the Raspberry Pi continues to operate when power fails or when the power plug is disconnected. The batteries are charged and the necessary power is generated from the batteries by Pi-UpTimeUPS to power the Raspberry Pi as well as the peripherals attached to it. Pi-UpTimeUPS automatically charges the battery when power is restored. Power demand spikes placed by the peripherals attached to the Raspberry Pi are also addressed by Pi-UpTimeUPS. Pi-UpTimeUPS protects the Raspberry Pi from brown-outs and other power issues.

Software provided ensures a proper shutdown when the batteries run low.

A power reset switch on Pi-UpTimeUPS makes it easy to reboot the Raspberry Pi after a software shutdown. After a software shutdown, a Raspberry Pi requires a user to plug/unplug the micro USB power to restart the Raspberry Pi. With Pi-UpTimeUPS, a momentary press of the power reset switch restarts the Raspberry Pi.

Pi-UpTimeUPS additionally provide 5V and 3.3V UPS power. Pi-UpTimeUPS also provides twelve analog ports. All these capabilities are exposed using the Pi-UpTimeUPS-BO board. Pi-UpTimeUPS-BO board is a recommended add-on board to the Pi-UpTimeUPS board.

¹ 18650 batteries are not included with Pi-UpTimeUPS board.

Specifications

General Information

Model Number: Pi-UpTimeUPS

Raspberry Pi Models supported

Any Raspberry Pi with a 40-pin header is supported. For example, Pi 2, Pi 3 etc. Older Raspberry Pi models with a 26-pin header are not supported.

Power

Input Power: 5V via micro USB connector on board.

Power Adapter: Not included.

Maximum Current: 1.7 Amps – system level maximum. Used by 5V and 3.3V power.

Maximum 3.3V UPS current: 800 mA. 3.3V is generated by Pi-UpTimeUPS.

Ripple: Less than 25mV p-p.

Operating Frequency: 18.5kHz.

Output

5V UPS Power: Power provided to the Raspberry Pi via the 40-pin header. 5V UPS power can be accessed via the PI-UpTimeUPS-BO board.

3.3V UPS Power: 3.3V Power from the Pi is not used. 3.3V UPS Power is generated and available via the Pi-UpTimeUPS-BO board.

Batteries

Batteries: Two unprotected² 18650 Lithium-ion batteries. Batteries are not included.

Battery capacity: Recommend 2000 mAh to 3200 mAh.

LEDs: Battery charge status & other information is shown by LED's on the board.

Battery polarity: Both batteries are inserted with positive polarity on the same side (where reset switch is located).

Battery holder: Self-extinguishing Thermoplastic Polyester, black color.

Safety: Onboard circuitry prevent over charging, deep discharging. Temperature monitor checks

temperature and shuts down charging if it becomes too hot.

Battery Charging: Uses CCCV charging method.

Depleted Batteries: Uses low current charging to bring charge level up and then CCCV charging.

Spacers

M2.5x23mm spacers recommended.

Reset Switch

Reset Switch: Reboots the Raspberry Pi after a shutdown.

External Switch: Connection points on the board for external normally-off, momentary-on reset switch.

Dimensions

Board dimensions: 83mm x 35mm x 70mm (3.3" x 2.2" x 1.4").

Weight: About 50g (1.7 oz.) without batteries. Note each battery adds approximately 50 grams of weight.

Warranty

90-day limited warranty.

Other Information

Recommended peripherals: Pi-UpTimeUPS-BO to us all the functionality available on Pi-UpTimeUPS.

RoHS Compliant. Electronic components, board etc. are RoHS compliant.

Operating Temperature: 0°C to +50°C with batteries. 0°C to +70°C without batteries.

Operating Humidity: 10% to 80% non-condensing.

Code download: www.piuptime.com

Product Video: <https://youtu.be/FMIRmrrCF-I>

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Alchemy Power Inc.

2098 Walsh Avenue, Suite A, Santa Clara, CA 95050-2544.

Phone: 650.823.2316

Email: sales@alchemypower.com

www.alchemypower.com

² Protected cells will not fit in the battery holder.