UPS PIco - Uninterruptible Power Supply & I2C Control HAT

The **UPS PIco HV3.0B Stack 450** is an advanced uninterruptible power supply for the Raspberry Pi A+/B+/2/3, that adds a wealth of innovative power back-up functionality and development features to the innovative microcomputer! The UPS PIco will automatically shut-down your Raspberry Pi if there is a power failure, and can be set to automatically monitor and reboot your Pi once power has been restored!

The UPS PIco HV3.0B Stack features a 5V 3A output, designed for use on the latest Raspberry Pi 3!

The **UPS PIco** is equipped with a 450mAh LiPO battery specially designed to enable safe shutdown during a power cut. Additionally, this can be easily upgraded to the extended 4000mAh or 8000mAh versions, which enables prolonged use of a Raspberry Pi for **up to 16 hours** without a power supply connected!

The **UPS PIco** features an embedded measurement system that continuously checks the powering voltage of the Raspberry Pi. When the cable power on the Raspberry Pi is absent, insufficient, or the device detects a power failure, the **UPS Pico** automatically switches to the unit's battery source. The module then continues to check the voltage on the Pi and switches automatically back to the regular cable supply when power is once again available.

The **UPS PIco** is powered and the battery pack intelligently charged via the GPIO pins on the Raspberry Pi, so no additional cabling or power supply is required. Because the **UPS Pico** requires no external powering and fits within the footprint of the Raspberry Pi, it is compatible with most cases.

The **UPS PIco** can also be equipped with an optional **Infra-Red Receiver** which is routed directly to GPIO18 via the PCB for remote IR operations. Additionally the PIco includes an Automatic Temperature Control **PWM FAN controller**, and can be equipped with a **Micro Fan Kit**, which enables the use of the Raspberry Pi in extreme conditions including very high temperature environments. The **UPS PIco** is designed to be 100% compliant with **HAT standards** for the Raspberry Pi and includes a **Gold Plated Reset Pin**, with install locations for the Raspberry Pi Zero, B+/2 and 3.

Feature List

- Raspberry Pi HAT Compliant
- Plug and Play
- Smart Uninterruptible Power Supply (UPS)
- Integrated 450mAh LiPO Battery (10-15 Minutes of Power Back-Up)
- Interrupt Driven Interaction (Low Memory/CPU Use)
- Software Driven Email Broadcasting
- Intelligent Automatic Charger w/ Power Tracking
- No Additional External Power Required
- Supports LiPo & LiFePO4 (Long Life) Batteries
- 5V 3A Power Backup for even the most demanding Pi 3 set ups.
- Integrated Hardware Real Time Clock (RTC) with Battery Back-Up
- File Safe Shutdown Functionality - Single Button On/Off
- Raspberry Pi Zero/B+/2/3 Activity Pin
- PWM FAN Control (Fan Not Included)
- 3 User Defined LEDs
- 3 User Defined Buttons
- Integrated Buzzer for Audible Alerts (Buzzer Included but Not Soldered)
- Status Monitoring - Powering Voltage, UPS Battery Voltage/Current and Temperature
- I2C PICo Interface for Control and Monitoring
- RS232 Raspberry Pi Interface for Control and Monitoring
- 2-Way XTEA Based Cryptography User Software Protection
- 2 Level Watch-dog Functionality with FSSD and Hardware Reset
- Raspberry Pi Hardware Reset Button via Spring Test Pin (Gold Reset Pin Included)
- Jumpers for Raspberry Pi Pin Functionality Selection
- Stackable Header for Add-On Boards (Header Included)
- Boot Loader for Live Firmware Update
- Integrated ESD-Protected 3 Channel A/D 10 Bit Converters 0-5.2V
- Integrated ESD-Protected 1-Wire Interface
- Labelled J8 Raspberry Pi GPIO Pins for Easy Plug & Play
- Infra Red Receiver Sensor Interface (IR Not Included)
- Intelligent IR Remote Power ON/OFF if IR receiver installed (Not Included)
- Upgradable with PIco Add-on Boards
- Fits Inside Most Existing Cases
- Events Triggered RTC Based System Actions Scheduler (ON/OFF based on RTC or Events e.g Voltage, RS232 data, A/D, IR)
- Auxiliary 5V @ 750mA Power Output w/ Battery Backup; PPTC Fuse and Reverse Current Protected
- The UPS PIco Uses the Following Pins
  - Serial Port (Firmware Updates): GPIO14 (Pin8) & GPIO15 (Pin10)
  - i2c Port: GPIO2 (Pin3) & GPIO3 (Pin5)
  - Pulse Train: GPIO27 (Pin13) & GPIO22 (Pin15)