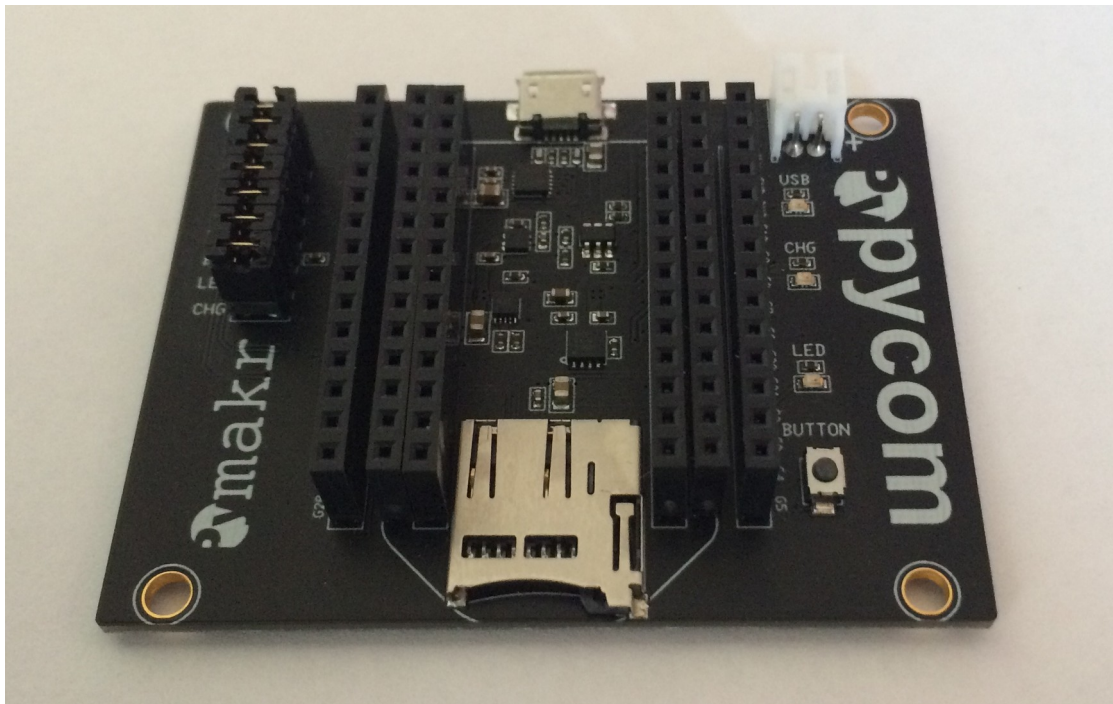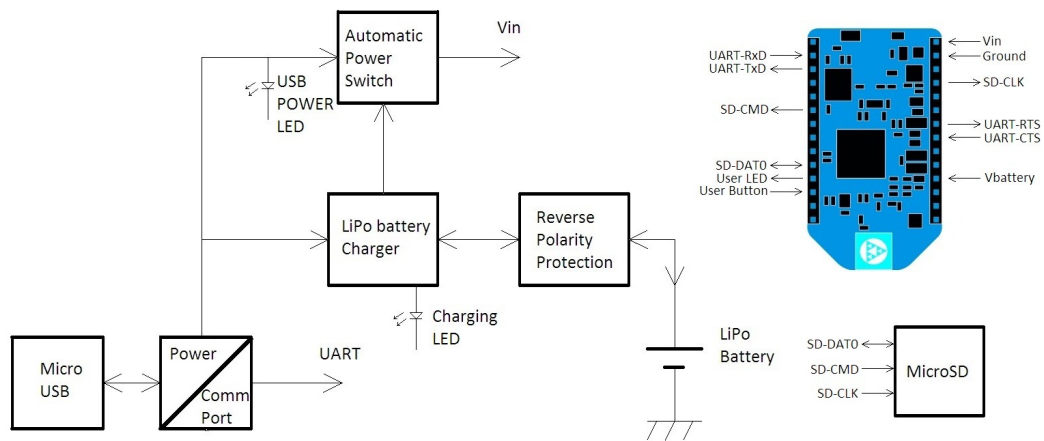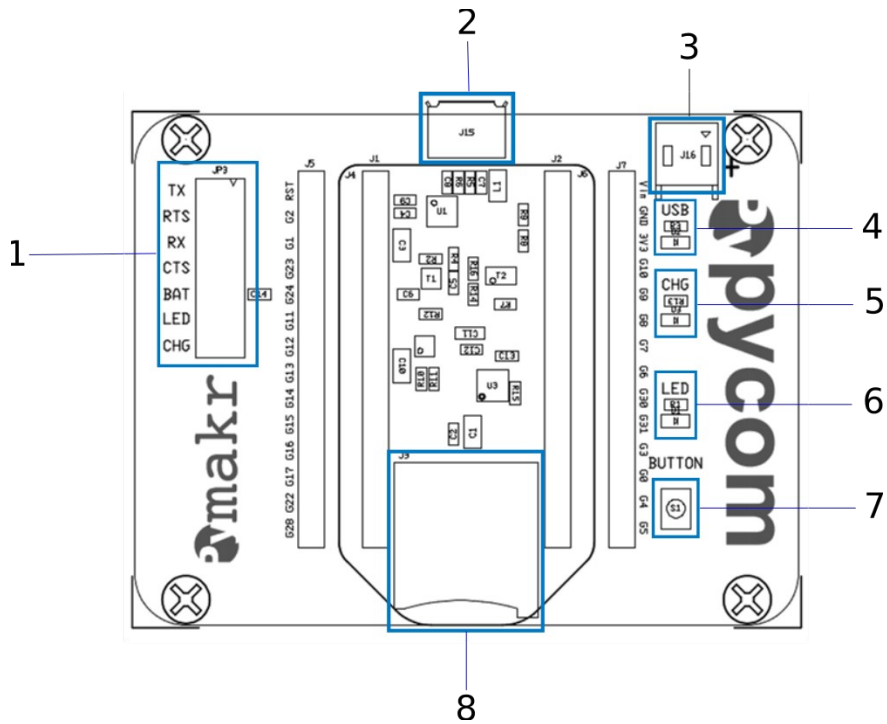# Pycom Expansion Board User Manual

1. Features

- All WiPy, LoPy and SiPy pins are available on breakout pins
- Micro USB Connector for power and for serial communication.
- User Button
- User LED
- Reverse battery protection
- LiPo battery charger
- Micro SD card connector with push-pull function
- 7 jumpers for enabling and disabling features

2. Block diagram

3. Overview

1. Feature selection jumpers
2. Micro USB connector for power and serial communication
3. LiPo battery connector (JST)
4. USB Powered LED
5. Charge indication LED
6. User LED
7. User push button
8. MicroSD card socket

4. Feature selection jumpers

Jumper number	Pin Name	Pin function jumper Closed	Pin function jumper Open
1	GPIO2	RxD	GPIO2
2	GPIO6	CTS	GPIO6
3	GPIO1	TxD	GPIO1
4	GPIO7	RTS	GPIO7
5	GPIO3	VBat	GPIO3
6	GPIO16	User LED Enabled	User LED Disabled
7	-	Battery charge current 450mA	Battery charge current 100mA

5. Using the LED

To use the LED on the super expansion board mount jumper 6. The user LED is connected to GPIO16 (G16 on the expansion board).

Example code:

```
from machine import Pin

# initialize GP16 in gpio mode (alt=0) and make it an output
p_out = Pin('GP16', mode=Pin.OUT)

# switch on the LED
p_out.value(0)

# switch off the LED
p_out.value(1)

# toggle the state of the LED
p_out.toggle()
```

6. Using the pushbutton

The user pushbutton is always connected to GPIO17 (G17 on the expansion board)

Example code:

```
from machine import Pin

# initialize GP17 in gpio mode and make it an input with the
# pull-up enabled
p_in = Pin('GP17', mode=Pin.IN, pull=Pin.PULL_UP)

# get value, 0 or 1
p_in()
```

7. cautions and warnings

The following conditions WILL CAUSE THE WiPy TO BE PERMANTLY DAMAGED.

- When a voltage above 3.6V is applied to any pin of the WiPy (besides the Vin pin)
- When a voltages above 1.8V is applied to an analogue input.

8. List of acronyms

Vin	Input voltage, connected to the USB power when available, otherwise connected to the battery.
SD-DAT0	SD-card data0

SD-CMD	SD-card command
SD-CLK	SD-card clock
UART	Universal Asynchronous Receiver-Transmitter
UART-TxD	Universal Asynchronous Transmitter line
UART-RxD	Universal Asynchronous Receiver line
UART-CTS	Universal Asynchronous Clear To Send line, used for flow control handshaking.
UART-RTS	Universal Asynchronous Request To Send line, used for flow control handshaking.

9. Remarks and suggestions

If you have any remarks or suggestions please let us know at <u>support@pycom.io</u>

10. Changelist

Version	Changes
1.0	Initial version
1.1	Added : Using the LED Using the pushbutton List of acronyms
1.2	Update to new expansion board form factor