

Blu-Ox Power Consumption.

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Assumptions:

- 1 The Blu-Ox will never be turned OFF – there will always be some LCD activity.
- 2 The A/D will sample 3 times a second with 3 conversions per sample.
- 3 The LCD will be updated every A/D sample.
- 4 The battery will be monitored once every hour with 5 ADC cycles per sample.

Power Consumption Calculation:

ST7LITE15

CPU (Estimated):

Active Halt mode 200uA

Run (Slow) mode 200uA

Consumption:

200 uAh (1)

LVD/AVD 245uA

245 uAh (2)

RC Oscillator (Not used)

0 mAh

PLL (Not used)

0 mAh

12-bit Timer AT2 50uA

50 uAh (3)

SPI (Not used)

0 mAh

ADC

1.2mA

1.2 mAh

(4)

Flash Memory

No Read/Write

100uA

100 uAh

(5)

Read

2.6mA

2.6mA x (256 / 32768)(Instructions)

20 uAh

(6)

Ports (Leakage)

1uA

1uA x 15(Pins)

15 uAh

(7)

CV9018A LCD

Supply

300uA

20uA x 8760

300 uAh

(8)

Battery Potential Divider

10uA

10 uAh

(9)

LTC3459 Regulator (1.2mA Load)

100uA

100 uAh

(10)

Total (1 – 10):

1.2 mAh

“AA” Battery capacities by manufacturer:

Varta 4106

2600 mAh

Duracell MN1500

2700 mAh

Energizer Ultra Alkaline

2850 mAh

Battery life:

$((2 \times 2600) / 1.2) / 24$

181 days