

ALL MATERIALS ARE ALUMINUM



**inlet**



temperature control

[http://www.hobbyking.com/hobbyking/store/uh\\_viewItem.asp?idProduct=19674](http://www.hobbyking.com/hobbyking/store/uh_viewItem.asp?idProduct=19674)

low voltage alarm to keep my battery from falling below a critical voltage

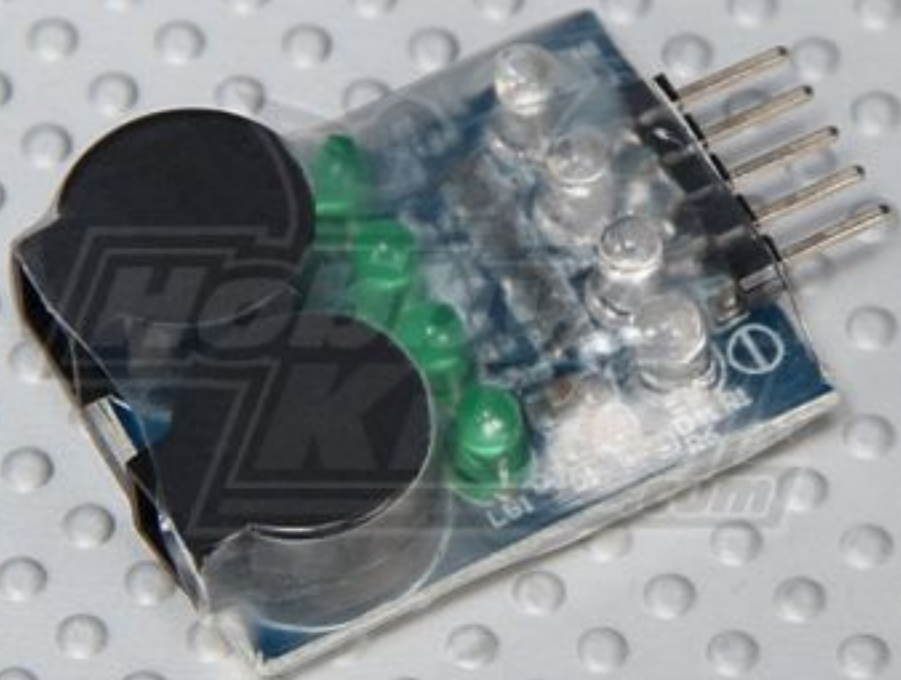
[http://www.hobbyking.com/hobbyking/store/uh\\_viewItem.asp?idProduct=18987](http://www.hobbyking.com/hobbyking/store/uh_viewItem.asp?idProduct=18987)

I ordered the low voltage alarm after reading the comments below.

"Need to use a Low Voltage Alarm with this. Or it will destroy your battery. It does not turn off when the battery get low. I just Kill one..."

5000mAh 11.1 volts battery-rechargeable Lipo Pack

[http://www.hobbyking.com/hobbyking/store/uh\\_viewItem.asp?idProduct=9184](http://www.hobbyking.com/hobbyking/store/uh_viewItem.asp?idProduct=9184)





TEMPERATURE  
CONTROLLER

INPUT: 7.4-12V

INPUT HEATER

HobbyKing.com

OUTPUT

MY LUNG capacities taken from my pulmonary function test

Peak expiratory flow; the highest forced expiratory flow (L/second) liters per second)=4.10

Total lung capacity; the total volume of air in the lungs at full inhalation=5.70 liters

Temperature differentiation.. max. outside temperature that i would go out in circa 27 degrees.  
i wish to keep 60-75 degrees inside the mask.

Flow of cold air:(taken from my pulmonary function test) 16L/min (moderate exercise could take this to 50)  
 $\Delta T = 25^{\circ}\text{C}$

heat capacity of air:  $\sim 0.00121 \text{ joule/cc/}^{\circ}\text{C}$   $1\text{J} = 1 \text{ W}\cdot\text{sec}$

$0.00121 \text{ W}\cdot\text{sec/cc/}^{\circ}\text{C} * 16000 \text{ cc/min} * 25^{\circ}\text{C} * 1 \text{ min}/60 \text{ sec} = 8 \text{ W}$   
use 10 watts