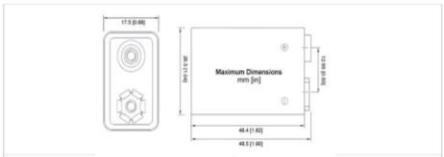
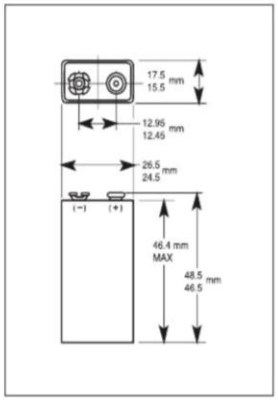
Battery

9V Battery



Voltage	8.6 - 9.3 V
Capacity	400 - 700 mAh
Power	> 3.44 Wh
Charge Current	< 250 mAh
Approximate Charge Time	> 1 hr
Weight	34 - 45 g
Battery Chemistry/Type	Lithium Ion
Operating & Storage Temp	Around 21 °C (70 °F)



Requirements:

- **Battery required to power the LightBar for *TowerOfLights***
- **3 LEDS on LightBar requires 800 mA**
- **Voltage must be within the range of 8.6 – 9.3 V (Charge)**
- **10.5 V to run 3 LEDs in a series**
- **7V for 2 LEDs in a series**
- **Microprocessor based wireless Module distributes the power supply to LEDs on each board**

Chemistry:

- **Lithium Ion: rechargeable battery type, due to high energy density, tiny memory effect, and low self-discharged, lithium ions move from negative electrode during discharge, and back when charging**
- **Alkaline: Popular primary battery (non-rechargeable), dependent on reaction between zing and manganese dioxide**

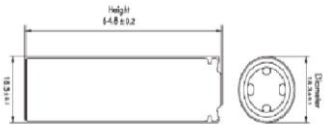
Voltage/Capacity:

- **Each LED requires around 3.5 V and each color takes 270 mA,**
- **A 9 V battery could support two LEDs in a series, 9V batteries support a wide range of mAh, generally from 400-700 mAh**
- **A 18650 Battery, which has 3.7 V, can be placed in a 18650 holder for 3 batteries, providing 11.1 V, enough to power 3 LEDs in a series (current LightBar setup), with 18650 supporting a range of 1600-3600 mAh**

Options:

- **18650 Battery: large capacity (mAh), allowing LEDs to run longer and can be configured to run LEDs in a series, if making battery pack from these, but requires long charging**
- **9 V Battery: Provides smaller capacity, but faster recharge rate. Can only run 2 LEDs for a single 9 V**

18650 Battery



Voltage	3.7 V
Capacity	1600 - 3600 mAh
Power	> 5.92 Wh
Charge Current	< 500 mAh
Approximate Charge Time	> 4 hr
Weight	45 - 48.5 g
Battery Chemistry/Type	Lithium Ion
Operating & Storage Temp	Around 21 °C (70 °F)