

Lead Acid Batteries

The nominal voltage of lead acid is **2 volts** per cell, however when measuring the open circuit voltage, the OCV of a charged and rested battery should be **2.1V/cell**. Keeping lead acid much below **2.1V/cell** will cause the buildup of sulfation.

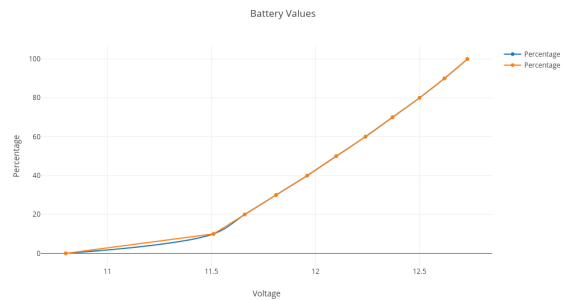
A lead-acid battery's theoretical voltage is 2 V for each cell. For a single cell, the voltage can range from 1.8 V at full discharge, to 2.10 V in an open circuit at full charge.

Charging

The correct setting of the charge voltage limit is critical and ranges from 2.30V to 2.45V per cell or 13.8V to **14.7V** for a 12V battery.

Power Levels

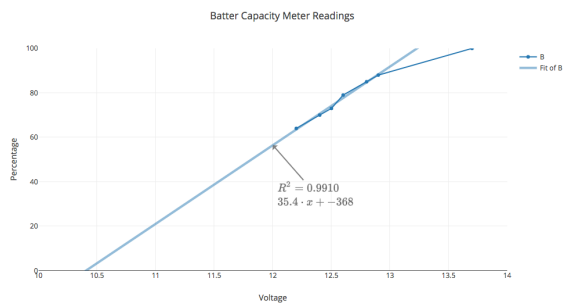
Percentage	Cell Voltage	Voltage
100	2.12	12.73
90	2.10	12.62
80	2.08	12.50
70	2.06	12.37
60	2.04	12.24
50	2.02	12.10
40	1.99	11.96
30	1.97	11.81
20	1.94	11.66
10	1.91	11.51
0	1.80	10.8



Batter Capacity Meter Readings

These readings were taken from my batter capacity meter.

Percentage	Voltage
13.7	100
12.9	88
12.8	85
12.6	79
12.5	73
12.4	70
12.2	64



Extrapolating from above

Voltage	Percentage
13.3+	100

13.0	90
12.7	80
12.4	70
12.1	60
11.8	50
11.5	40
11.3	30
11.0	20
10.7	10
10.4	0

References

Reference	URL
Wikipedia	https://en.wikipedia.org/wiki/Lead%E2%80%93acid_battery
Charging Lead Acid Batteries	https://batteryuniversity.com/learn/article/charging_the_lead_acid_battery
Plot of Battery Capacity Meter Readings	https://plot.ly/~jmehan/3/
The Best RV Deep Cycle Battery	https://www.batteryequivalents.com/the-best-rv-deep-cycle-battery.html
Renogy Lithium-Iron Phosphate Battery 12 Volt 50Ah for RV, Solar, Marine, and Off-grid Applications	https://www.amazon.ca/Renogy-Lithium-Iron-Phosphate-Off-grid-Applications/dp/B07QB25H47/ref=sr_1_1?keywords=Renogy+Lithium-Iron+Phosphate+Battery+12+Volt+50Ah+for+RV%2C+Solar%2C+Marine%2C+and+Off-grid+Applications&qid=1572447880&s=automotive&sr=1-1-catcorr