

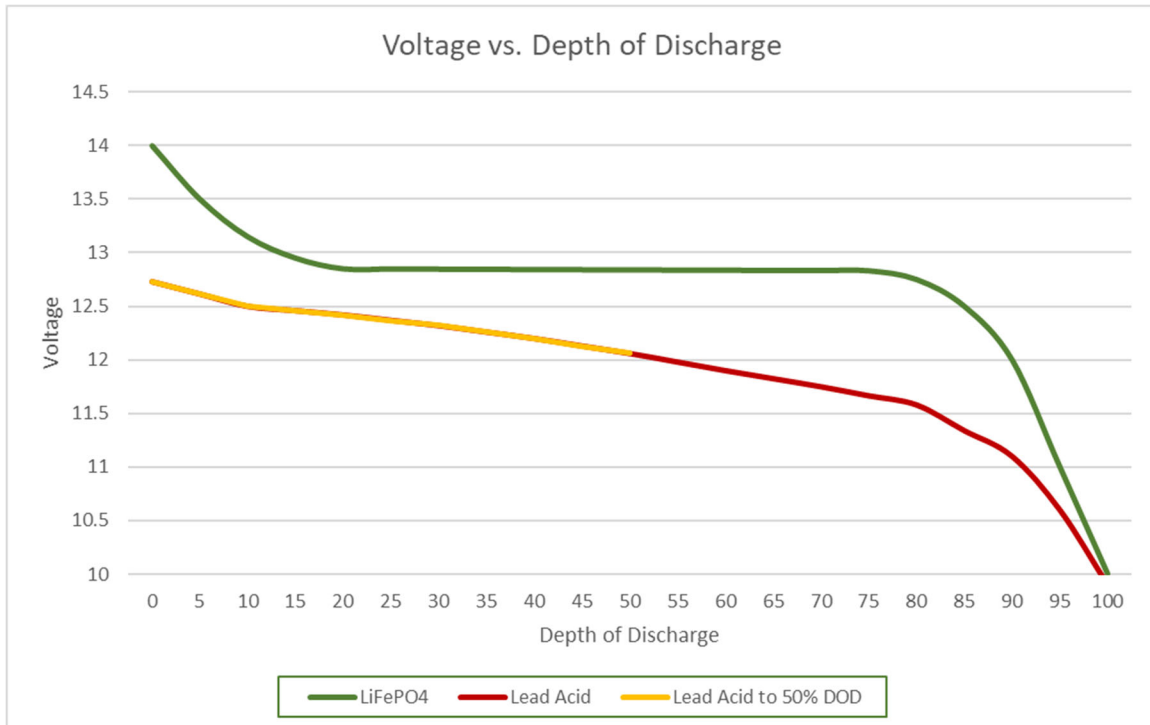
Renewed Lithium Iron Phosphate Battery Charge Recommendations

Following are our recommended starting points for battery charge settings for our common battery voltages. As a general rule, we recommend setting float higher for applications with higher loads, and lower when there is more capacity relative to the load. As shown in the figure below, lithium spends the majority of its operation near its nominal voltage. This results in more “area under the curve” as compared to lead acid, which translates to higher performance and efficiency. In addition, lithium has no memory effect and is far more tolerant of being discharged to 100% of rated capacity, whereas the lifespan of lead acid is shortened considerably when regularly discharged below 50% depth of discharge.

Higher Wire uses an advanced battery management system (BMS) in our renewed batteries to cut power before damage can occur. The BMS will reset itself if the load is removed, and will still allow an under- or over-charged battery to charge or discharge, respectively, to a safe level. However, we still recommend setting the operating voltage range closer to nominal voltage. This will maximize battery life while still providing 80% or more of rated capacity.

It is imperative that the charger is designed for lithium iron phosphate. The use of lead acid charger will void the warranty. An adjustable charge controller is highly recommended. Lowering the charge voltage will reduce capacity very slightly (by 5-10%) but greatly extend the life of the battery.

Each application is different, and many charge controllers have other settings. Call or email us at sales@higherwire.com with any questions or for design assistance.



<u>12-Volt</u>	Value	Comments
Battery Chemistry	Lithium Iron Phosphate	
Number of Cells	4	
Nominal Voltage	12.8	
Bulk Voltage	14	
Absorb Voltage	14	
Float Voltage	13.6	
Float Time	30 minutes	
Equalize Voltage	14	Disable if possible
Rebulk Voltage	12	
Temperature Compensation	0	or disabled
Charge Rate	50% of amp-hour capacity	For example, 50 amps for a 100Ah battery
Charge cutoff minimum temperature	32°F (0°C)	

<u>24-Volt</u>	Value	Comments
Battery Chemistry	Lithium Iron Phosphate	
Number of Cells	8	
Nominal Voltage	25.6	
Bulk Voltage	28	
Absorb Voltage	28	
Float Voltage	27.2	
Float Time	30 minutes	
Equalize Voltage	28	Disable if possible
Rebulk Voltage	24	
Temperature Compensation	0	or disabled
Charge Rate	50% of amp-hour capacity	For example, 50 amps for a 100Ah battery
Charge cutoff minimum temperature	32°F (0°C)	

36-Volt	Value	Comments
Battery Chemistry	Lithium Iron Phosphate	
Number of Cells	12	
Nominal Voltage	38.4	
Bulk Voltage	42	
Absorb Voltage	42	
Float Voltage	40.8	
Float Time	30 minutes	
Equalize Voltage	42	Disable if possible
Rebulk Voltage	36	
Temperature Compensation	0	or disabled
Charge Rate	50% of amp-hour capacity	For example, 50 amps for a 100Ah battery
Charge cutoff minimum temperature	32°F (0°C)	

48-Volt	Value	Comments
Battery Chemistry	Lithium Iron Phosphate	
Number of Cells	16	
Nominal Voltage	51.2	
Bulk Voltage	56	
Absorb Voltage	56	
Float Voltage	54.4	
Float Time	30 minutes	
Equalize Voltage	56	Disable if possible
Rebulk Voltage	48	
Temperature Compensation	0	or disabled
Charge Rate	50% of amp-hour capacity	For example, 50 amps for a 100Ah battery
Charge cutoff minimum temperature	32°F (0°C)	