



Model: **A04S-20**

## Lithium Iron Phosphate Battery $\text{LiFePO}_4$

**Nominal Voltage: 12.8V**

**Rated Capacity: 20Ah**

### Dimensions



### Features

- **Wider temperature range:**  $-20^{\circ}\text{C}$ ~ $60^{\circ}\text{C}$ . (Lower temperatures will result in decreased capacity)
- **Lighter Weight:** About 40%~ 50% less weight of comparable lead acid battery.
- **Usable Capacity:** Delivers twice power of lead acid batteries.
- **Quality BMS:** BMS (Battery Management System) will protect your battery from over charging, discharging too low or short circuits with built in cell balancing.
- **Extraordinary cycle life:** Offers 2000+ life cycles, up to 5x longer than lead acid batteries, helping to minimize replacement cost and reduces total cost of ownership.
- **Series and Parallel Configurations:** CANNOT be wired in series for higher voltage. May be wired in Parallel for higher capacity.
- **Voltage:** Uniform voltage during discharge.

### Applications

- Portable Power
- Fishing Electronics
- Portable Power Boxes.
- Backup Power
- Lighting
- Solar & Wind power system
- Much much more!

# General Specifications

	Performance Specifications	General Parameters	Comments
<b>Electrical Characteristics</b>	Nominal Voltage	12.8V	
	Nominal Capacity	20Ah	Standard charge after Standard discharge
	Energy	256Wh	
	Cell Combination	4S4P	
	Months Self Discharge	≤3.5% per month	@25°C (77°F)
	Cycle Life	>2000 Cycles 80% of initial capacity	0.5C Charge/0.5C Discharge at 80%DOD
	Internal Resistance	≤ 50mΩ	@50%SOC
<b>Charge Specifications</b>	Charging Voltage	14.6V	
	Recommended Charge Voltage	14.0~14.4V	
	Recommended Charge Current	Up to 10A. We encourage the use of our 3A	
	Max.Charge Current	≤15A	@25°C (77°F)
	Charge Cut-off Voltage	14.6V	Resting voltage 13.8V
<b>Discharge Specifications</b>	Standard Discharge	≤10A	@25°C (77°F)
	Max. Continuous Discharge Current	≤15A	@25°C (77°F)
	Max.Pulse Current	20A(<3s)	@25°C (77°F)
	Discharge Cut-off Voltage	10.0V	Resting voltage 12.0V
<b>Environmental</b>	Charge Temperature	0 to 45°C(32 to 113°F)	@65±20% Relative Humidity
	Discharge Temperature	-20 to 60°C(-4 to 140°F)	
	Storage Temperature	-20 to 45°C(-4 to 113°F)	
	IP Rating	IP65	
<b>Mechanical</b>	Length*Width*Height	150*99*65 Inches - 5 7/8 x 3 29/32 x 3 5/8	Height without terminals
	Case Material	ABS	
	Weight	Approx 4.0lbs	
	Terminals	F2 Spade	

## User Guide

**Charging:** Using the Amped Outdoors charger, connect the battery to the charger (you will see charger light will turn green) and then plug in the AC cable into the wall outlet. The charging light will turn red when charging and when the charge is complete, the light will turn green again. If you are not using an Amped Outdoors charger, please refer to the troubleshooting section if your battery will not take a charge.

**Connecting your battery:** With your source being turned off, connect your battery to your source. Ensure that you have a tight, solid connection and use the provided hardware such as lock washers and washers if you have a battery with bolts. It is highly encouraged to use dielectric grease on all connections to prevent any corrosion from water exposure. Check your connections regularly along with cables, connectors or other components to make sure they are free of corrosion, wear and all connections remain tight.

**Housing and mounting:** Please ensure your battery is mounted or in the proper box before use. Depending on your application, it is important to keep your battery from moving around or being exposed to elements. Our batteries do not require venting so a sealed case or enclosure will only help protect the battery. Although our batteries have a superior water proof rating, it is encouraged to keep your products free from elements to prevent buildup of water, corrosion and debris. This will ensure your battery will look and perform like new for the expected life of the product.

**Long term battery storage:** Never store your battery fully discharged. It is best to put a 50% to full charge on your battery and then remove it from the charger. To ensure the best performance from your batteries for many years, put a short charge or use your battery at least once every 2-3 months. The best temperature to store a lithium battery is between 40-80 degrees F. A cool and dry place is ideal. The maximum discharge rate of our batteries would not exceed 3.5% per month in storage. Do not place a lithium battery on a charger for extended periods of time when not in use. Lithium batteries will last longer if not stored at a 100% charge rate for a long period of time.

## Frequently Asked Questions

- 1. Do I need a special charger?** A- We HIGHLY encourage the use of the appropriate charger with our batteries to ensure a full charge, speed of charge and proper cell balancing, it is wise to use the our chargers. Chargers that are "Lithium", often do not include the feature to reset a battery BMS. This means they will not charge a battery that has been fully drained that may read below 10V.
- 2. How to I store my battery?** A- Never store your battery fully discharged. It is best to put a 50% to full charge on your battery and then remove it from the charger. To ensure the best performance from your batteries for many years, put a short charge or use your battery at least once every 2-3 months.
- 3. Can I lay my battery on its side?** A- Yes, all of our batteries can be mounted in any orientation as long as you secure them appropriately. Ensure that all terminal posts are free from all metal to prevent a short circuit.
- 4. Do I need to discharge my battery before recharging?** A- No, it is advised that your charge your battery before each use. Lithium batteries will not have a memory and even though it is safe to drain the battery 100%, it is advised to drain lower depth of discharge.

For Additional FAQ: <https://ampedoutdoors.com/pages/faq>

## Troubleshooting

- 1. Battery will not hold or accept a charge:**
  - a. Lithium Batteries have a built in BMS (Battery Management system) that will trigger when a battery is depleted or it is triggered into protection. The voltage of the battery may read less than 4v. Our chargers will reset a BMS to begin charging but many on board or aftermarket chargers may not do this because they think the battery is bad. You can connect another charged 12V battery in parallel (red to red and black to black) like jump starting a vehicle. This will reset the BMS and allow you to charge again.**
  - b. If you have our charger, check the voltage output of the charger. The charger will output 14.4-14.6V and will reset the BMS. If it does not, then you likely have a blown fuse on the charger or the charger is not working. Ensure all connections are tight and your AC outlet is working.**
- 2. Battery just stops:** This is typical of a battery BMS (Battery Management System) being triggered. One of the following has happened: Depleted Capacity, Short Circuit, Over Current, Excessive Heat. You can reset the BMS by connecting another battery in parallel or connecting to the proper charger. The BMS is built in to protect the battery and your components.

**Contact for additional troubleshooting: [Service@ampedoutdoors.com](mailto:Service@ampedoutdoors.com)**

## Warnings

**Lithium batteries are very safe as long as they are used correctly. Please contact us if you have any questions on your applications.**

- Do not crush, puncture or attempt dismantle the battery.**
- Do not place the battery near an open flame and try to avoid direct heat.**
- Do not dispose the battery in to the trash. Please find a local lithium recycler.**
- Do not place the battery in fluids such as salt water, acid or alkaline.**
- Do not short circuit the battery terminals.**
- Do only use the approved chargers.**
- Never store the battery at a fully depleted state of charge.**

**Warning: Cancer and Reproductive Harm  
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