

# CAUTION! PLEASE READ!



## **Proper Charging is Crucial! Charge before initial use!**

**Be sure to read the 14V/16V Instruction Sheet for full instructions.**

Proper Charging is crucial to the life of your XS Power battery. It is very important that the temperature of the battery remains cool with respect to the charge voltage. The chart below will help ensure proper charge voltage with different ranges of temperature.

### TEMPERATURE SPECIFICATIONS

Nominal Operating Temp.	77°F (25°C)
Charge Temp. Range	32°F - 104°F (0°C - 40°C)
Discharge Temp. Range	5°F - 122°F (-15°C - 50°C)

### CHARGE VOLTAGE REFERENCE CHART (Volts Per Cell)

Temperature	32°F (0°C)	50°F (10°C)	68°F (20°C)	77°F (25°C)	86°F (30°C)	104°F (40°C)
Charge Voltage	2.55	2.51	2.47	2.45	2.43	2.39
Float Voltage	2.350	2.320	2.290	2.275	2.260	2.230



## **Do Not Over-tighten Battery Terminals!**

**Whether using the automotive post adaptors, bolts or screws, the tightening torque should never exceed 8 ft-lbs max on any XS Power Battery!**

### Installation

- Securely fasten the battery to the vehicle. XS Power 14 volt - 16 volt AGM Performance batteries are designed to bolt into most Group 24, Group 27, Group 31, Group 34, Group 74, and Group 78 battery tray set-ups.
- For racing applications, we recommend that the battery be positioned with the battery plates parallel with the frame rails of the car in all drag racing applications and perpendicular in circle track applications.
- Connect the battery cables. Observe polarity carefully.
- The bolt-in design on the battery allows the user to bolt the battery cable lugs directly to the battery with provided hardware. Also available are positive and negative brass SAE top-post adaptors, or 3/8" stud adaptors that can be threaded into the bolt-in terminals on the top of the battery when using standard SAE, or other style battery terminals. Whether using the stud adaptors or the brass top post adaptors, the tightening torque should never exceed 8 ft-lbs max!
- If you are running a dual battery set-up, make sure that the batteries are hooked up in parallel(positive to positive and negative to negative). Parallel doubles the amperage and reserve capacities whereas series(positive to negative) would double the voltage output.

### Insuring Adequate Battery Capacity

Although 14 volt - 16 volt batteries offer the obvious advantage of 2 or 4 additional volts of power, they do not offer increased reserve capacity. How much reserve capacity do you need? In a drag racing application, do you need one battery or two? Ultimately this is a matter for either good calculation or simple testing. Conditions that would suggest using two batteries in parallel include: driving a drag car to the staging lanes and back without an alternator, running 'round robin' in later rounds without charging, or having other heavy electrical loads on the system.

For example, the starter will spin much faster on 16 volts it is difficult to determine when the battery is becoming discharged. A 16-Volt battery at 25% state of charge will still measure 16.0V open circuit across the terminals. Once a 16-Volt battery is down to 14.0V open circuit, it is considered completely discharged and it will be unable to delivery amperage. Deep discharging the battery in this manor also reduces its life. Therefore in order to prevent a no-start situation, it is important that the battery state of charge be monitored. In vehicles without alternators, we recommend charging the battery at every opportunity with an automatic, three-stage battery charger.



# REAL POWER UNREAL PERFORMANCE

## ⚠ Proper Charging Is Crucial! Charge Before Initial use!

It is very important that proper charging techniques be used when charging AGM batteries. AGM batteries are designed for use with AGM battery chargers with a MAXIMUM output voltage of 2.4 volts per cell (16.8v for 14v batteries and 19.2v for 16v batteries). AT NO TIME during charging should the battery be subjected to more than 2.4 volts per cell. Voltage above this will cause the battery to "gas" and once oxygen is vented it cannot be restored.

Under-charging AGM batteries is equally damaging to the life of the battery. Take special care to ensure that the battery is properly charged before the initial use by verifying the open circuit voltage is above 2.1 volts per cell (12.6 for 12v batteries, 14.7 for 14v batteries, and 16.8 for 16v batteries). Improper charging can cause damage that is permanent and WILL VOID THE WARRANTY.

## XS Power 14-Volt/16-Volt AGM Batteries

XS Power 14-Volt/16-Volt AGM Performance batteries are seven or eight cell, sealed-valve regulated lead-acid batteries. Sealed-valve regulated, lead-acid (VRLA) batteries are manufactured in two types, gel-cell and AGM (Absorbent Glass Mat). The key difference is how the electrolyte is suspended between the lead plates. AGM batteries such as the XS Power 14-Volt/16-Volt AGM Performance batteries, use a fibrous material to suspend all the liquid electrolyte against the plates. Even if the case were ruptured no acid would leak. In contrast, gel-cell batteries suspend the electrolyte in a gel form and are not necessarily leak proof.

AGM batteries are similar in chemical function to flooded and maintenance free batteries in that they convert electrical energy into chemical reactions on the lead plates. AGM batteries differ in the amount of electrolyte used. AGM batteries have substantially less electrolyte than a typical flooded or maintenance free battery. Operating with less acid is possible in an AGM battery because each cell in the battery operates on a slight positive air pressure. This air pressure allows for the water produced during discharge to condensate and therefore recycle inside the battery. Hence almost no gasses escape the battery under proper charging conditions. If the battery were to be overcharged, the small amount of electrolyte could be "gassed" and vented by means of the safety valves from the battery. This is the main cause of premature AGM battery failure and therefore should be avoided. The cells are compressed before insertion in the case, which increases performance and makes the battery extremely vibration resistant. The reduced acid content of the battery allows for additional plates and therefore additional performance in an AGM design. XS Power is using this technology to bring 14-Volts/16-Volts to the performance car market.

Specifications	D1400	S1400	D1600	S1600
Number of Cells	7		8	
Open Circuit Voltage (fully charged)	15.1VDC		17.2VDC	
Length	10.24"		10.24"	
*Height	7.08"		7.08"	
Width	6.46"		6.46"	
*Height to top of terminals is 7.2" (183mm)				
Weight	42.99 lbs (19.50kg)	27.91 lbs (12.66kg)	47.25 lbs (21.43kg)	30.60lbs (13.88kgs)
Terminals	SAE Auto Adaptors		M6 to 3/8" Stud Adaptors	
Amp Hour Rating	50 AH	25 AH	50 AH	25 AH
The Amp Hour rating is the amount of amperage available when discharged evenly over a 20-hour period to 1.75VPC.				
Cranking Amps @ 32°F	675A	500A	675A	500A
Cranking amps is the number of amps the battery can provide at 0°C for 30 seconds.				
MAX Amps	2400A	2000A	2400A	2000A
Reserve Capacity @ 25A	85 min.	50 min.	85min.	50 min.
Reserve capacity is the number of minutes the battery can provide 25A @ 1.75VPC or higher.				
Maximum Charging Voltage	2.45VPC ± .05V			

## TEMPERATURE SPECIFICATIONS

Nominal Operating Temp.	77°F (25°C)
Charge Temp. Range	32°F - 104°F (0°C - 40°C)
Discharge Temp. Range	5°F - 122°F (-15°C - 50°C)

Proper Charging is crucial to the life of your XS Power battery. It is very important that the temperature of the battery remains cool with respect to the charge voltage. The chart below will help ensure proper charge voltage with different ranges of temperature.

## CHARGE VOLTAGE REFERENCE CHART (CELL)

Temperature	32°F (0°C)	50°F (10°C)	68°F (20°C)	77°F (25°C)	86°F (30°C)	104°F (40°C)
Charge Voltage	2.55	2.51	2.47	2.45	2.43	2.39
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## WARNING/SAFETY Precautions

**Warning:** Lead-acid batteries of all designs produce explosive gasses. Sparks of any kind could cause a battery to explode.

### Therefore:

- Never smoke when around a battery.
- Never weld or otherwise produce sparks around a battery.
- Do not allow tools or other metal objects to fall across the battery terminals- this will short circuit the battery.
- Always wear protective clothing and eye wear when servicing a battery.
- Sulfuric acid can cause severe burns. If acid comes into contact with your skin flush with water immediately. If acid comes in contact with your eyes, flush immediately with water for fifteen minutes and seek medical help promptly.
- Neutralize acid spills with baking soda and water.
- Keep all batteries out of reach of children.
- California Proposition 65 Warning: Batteries, battery posts, terminals, and related accessories contain lead and lead compounds, and other chemicals known to the State of California to cause cancer, birth defects, and reproductive harm. **Wash hands after handling!**

## Caution:



Do not overcharge this battery. Use only a voltage limited automatic battery charger set at 2.45VDC ± .05VDC/cell maximum.



This is a sealed battery. Do not attempt to remove the vent caps under the top label.



Recycle used batteries in accordance with local, state, and federal law at an authorized recycling center.



Battery must be recycled!



DO NOT  
OPEN VENT  
VALVES!



## Care of XS Power 14-V/16V AGM Battery

- Charge voltage is not to exceed 2.45VPC ± .05V for extended periods of time. (5min. max)\*

- The charger used MUST HAVE and automatic shut-off.

\*Some AGM chargers may climb to a maximum voltage of 21.0VDC for a short period of time (usually less than 5min.) but will resume charging at or near 2.45VPC ± .05V for the duration of the charge cycle. If you are unsure of your chargers capabilities, contact the manufacturer of the charger

Exceeding 2.45VPC ± .05V will cause the battery to "gas" and once the oxygen is released from the battery there is no way to restore it. The results will be reduced capacity and battery life and those results are permanent. This type of damage will cause the battery to show a proper open circuit voltage yet will not accept a charge and will become excessively hot during charging. Damage of this nature will void the warranty. Therefore ensure that your battery charger will not exceed 2.45VPC ± .05V at any time during the charging cycle. For ease of use, we recommend recharging the battery with an XS Power IntelliCHARGER p/n 1005 or 1004, as it is a totally automatic 3 stage microprocessor controlled battery charger with float charging capability. This battery charger prevents overcharging, maintains proper performance and can be left on the battery indefinitely during non-use periods.

It is very important to NEVER USE a charger designed for flooded 14V/16V batteries, not even once with a XS Power 14V/16V AGM battery. Furthermore, we recommend that the battery be disconnected from the rest of the vehicle's electrical system during charging.

## "Off Season" Maintenance

All lead-acid batteries, both flooded and AGM designs, are subject to self-discharge and this self-discharge rate is very much affected by the ambient temperature in which the batteries are stored. Higher ambient temperatures will discharge the battery faster. Cool storage for the battery is best. The battery should be recharged when the open circuit voltage falls to 14.7V for 14 volt batteries, or 16.8V for 16 volt batteries. The float charge feature built into the XS Power IntelliCHARGER would prevent overcharging the battery and will maintain it well. This battery charger can be left on the battery indefinitely during non-use periods. The battery must be recharged as described in the Performance Curve diagram to the left.

