

# SLA1116 User Guide



## QUALITY ASSURANCE (STANDARDS)

Interstate Batteries® prides itself in the quality of its SLA (Sealed Lead-Acid) batteries. In order to meet that commitment to quality, Interstate employs multiple Quality Technicians, alongside its own Supplier Quality Engineer who together use some of the most advanced equipment possible to continuously conduct stringent testing; which are modeled on BCI (Battery Council International) and ANSI (American National Standards Institute) processes.

Additionally, we have relationships with several independent inspection firms overseas in order to circumvent any problems before batteries arrive at our facility. Interstate Batteries only works with approved ISO:9001, ISO:14001 and UL (Underwriter Laboratories) approved manufacturers.

Our SQE (Supplier Quality Engineering) team personally visits, audits and inspects the production and quality assurance processes for each of our factories at least once a year to assure conformity to regulatory, industry and customer standards. In addition to our strict performance expectations, we require that they uphold the highest ethical standards, are environmentally conscious; and that they maintain safety and humanitarian requirements for their employees.

## SLA1116 IDENTIFICATION - (Genuine Interstate Batteries Product)

- (#1) A genuine Interstate Batteries SLA1116 battery product will be a black case with a white Interstate Batteries logo and lettering.
- (#2) The Interstate Batteries logo will be clearly visible and printed on the front of the battery.
- (#3) The battery will also be identified by the printed part number of SLA1116.
- (#4) Additionally, there will be an imprinted 5-character date code, which is located on the top center of the SLA1116 battery case.
- (#5) Finally, the UPC **6 56489 06630 5** and corresponding barcode will be visibly printed on the lower right corner.



## WHAT IS AN AGM

Absorbent Glass Mat commonly known as AGM, is a type of sealed lead-acid battery. One feature of AGM batteries is the thin glass fibers interwoven into a mat. This helps to make the battery spill-proof, as the fibers containing the glass mat gradually absorb the acid composition. As a result, AGM batteries have fewer hazardous material limitations.

AGM's unique composition allows the batteries to produce high currents and longer life span. The technology also minimizes internal resistance and helps the battery to survive low temperatures. Specific models of AGM product will allow users to benefit from AGM's deep-cycling capability. It also offers a charging speed that is 5x faster than conventional flooded deep-cycle batteries.

## AGM ADVANTAGES

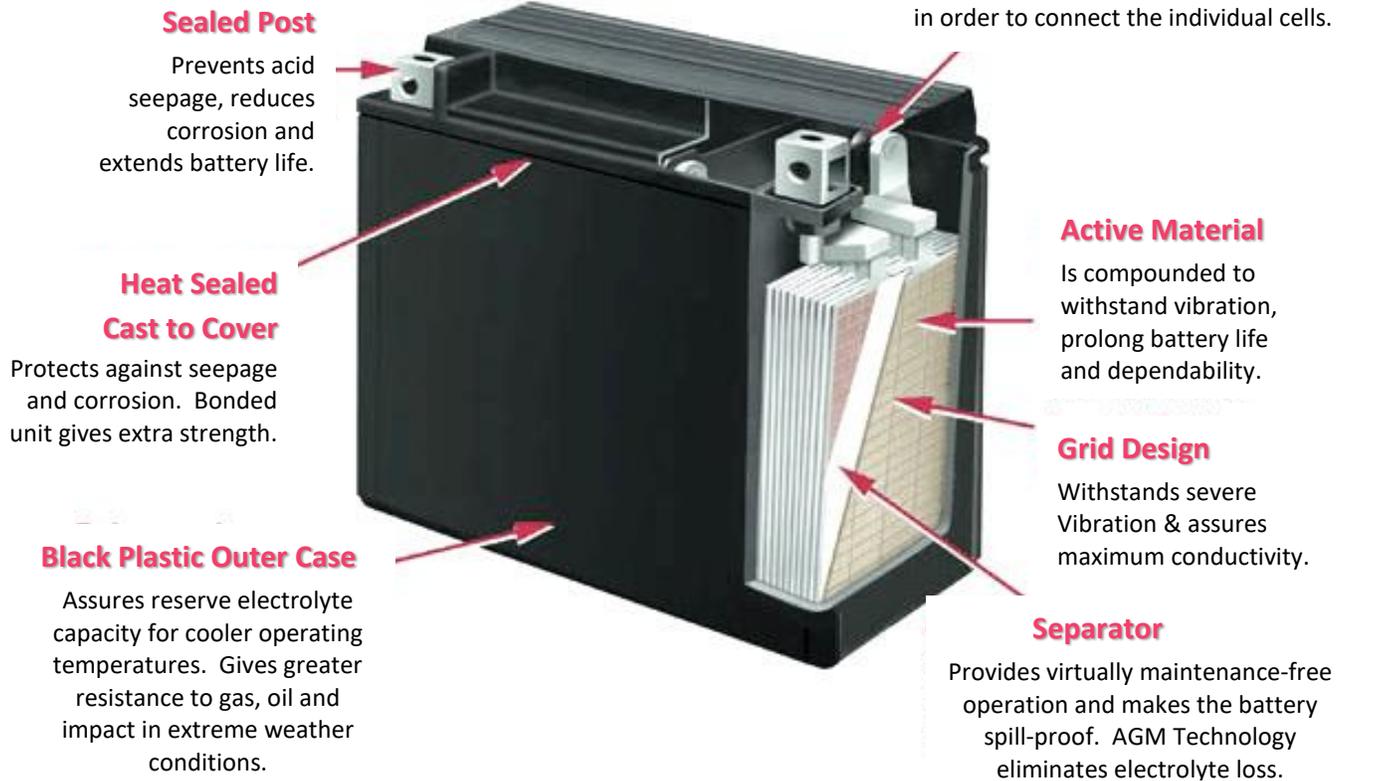
- Less prone to sulfation - (Topping off charges typically only required every three months).
- High on-demand power, Low internal resistance & responsive to demand load.
- Longer/ better cycles & efficient usage life than conventional flooded systems.
- Up To 5X Faster charging capacity (Compared to conventional flooded battery technology).
- Stands up well to cold temperature.
- Vibration resistance due to sandwich construction.
- Spill proof through acid encapsulation in matting technology.
- Eco-friendly, has less electrolyte and lead compared to conventional flooded type batteries.

## AGM CONSIDERATIONS

- Higher cost than conventional batteries.
- Must be stored in charged condition (less critical than conventional flooded batteries).
- AGM batteries are sensitive to overcharging.

## AGM (TYPICAL) CONSTRUCTION

### AGM Battery Technology



## SLA STORAGE GUIDELINES

Always store Lead Acid batteries at a fully charged state and in a cool dry place. The optimum temperature for storage is between 60°F and 77° F. **NOTE: Every 15° rise above 77° in storage temperature will cut battery life in half.** Since all batteries gradually self-discharge over time, it is important to regularly check the OCV (Open Circuit Voltage), and then apply a top charge to the battery when it begins to near 70 percent state-of-charge. (70 percent SOC reflects 2.07V/cell open circuit or 12.42V for a 12V pack).

When a lead acid battery drops below 70 percent SOC (State of Charge), Sulfation will begin to occur. Sulfation is the formation of lead sulfate crystals on battery plates which causes increased internal resistance and reduced capacity.

## SLA STORAGE GUIDELINES CONTINUED

Sulfation initially leaves your battery less efficient and ends by leaving it non-functional. To avoid sulfation during storage, check and then recharge your SLA batteries to full capacity every two to three months.

AGM BATTERY		0°C (32°F)	10°C (50°F)	20°C (68°F)	25°C (77°F)	30°C (86°F)	40°C (104°F)
12V	CHARGE VOLTAGE	15.30 V	15.06 V	14.84 V	14.70 V	14.55 V	14.34 V
	FLOAT VOLTAGE	14.40 V	14.16 V	13.94 V	13.80 V	13.65 V	13.44 V

*Typical Temperature/ Charge Voltage Reference Chart*

## SLA DISCHARGING GUIDELINES

SLA (Sealed Lead Acid) batteries that are correctly & frequently discharged, will provide the user greater recharging cycles, improved reliability and longer battery life. Your SLA battery will perform and yield greater life cycles, if you maintain an average discharge cycles to 50% or less before recharging. Should the battery be severely discharged down to 0% SOC (State of Charge), it is recommended that the battery is recharged as soon as possible to increase the chances of recovery.

## BATTERY MIXING WARNING

It is important to remember that batteries that are used together in a series or parallel connection should be replaced as a complete group. For example: If one battery in a series or parallel connection fails, the rest of the batteries in that group should be replaced at the same time. The new batteries which are replacing the old group of batteries should all share the same date code, ideally share a near similar OCV (Open-Circuit Voltage), internal resistance; and there should NEVER be a mixing of brands. Mixing new and old batteries, or battery brands will cause the newer/stronger battery to succumb to a reduced cycle life; and will ultimately fail prematurely in the host device. (A group of batteries connected in series or parallel are only as strong as the weakest battery in the chain).

**NOTE: Severe discharging & incorrect recharging of the battery is harmful to the battery's chemistry; causing premature & permanent damage beyond the point of recovery and use.**

## SLA CHARGING GUIDELINES

Always charge an SLA battery back to the level it was at before it was discharged as soon as you have the opportunity to do so. Never exceed the recommended maximum charging current allowed for that specific SLA. For the SLA1116, between 2 to 5 amps. is recommended, with the lower of the two being preferred. Most SLA's do not lend themselves to fast charging. In most cases, SLA products prefer low and slow charging/ recharging.

We recommend automatic "smart" chargers that employ the 3-stage charge method where the battery gets an initial 5 to 8-hour bulk charge, an intermediate 7 to 10-hour topping charge and then a final float charge; to prevent self-discharge. If you are charging too fast or applying too high of a charging current, you will not only shorten the life of your battery but; could also create an overcharge situation which will cause the battery case to swell/deform, and potentially catch fire.

**NOTE: BATTERY POSITIONING WARNING - AMG batteries have the added ability to be mounted in several different positions. However, you should never mount, store, or charge a SLA / AGM battery in an inverted or upside-down position.**

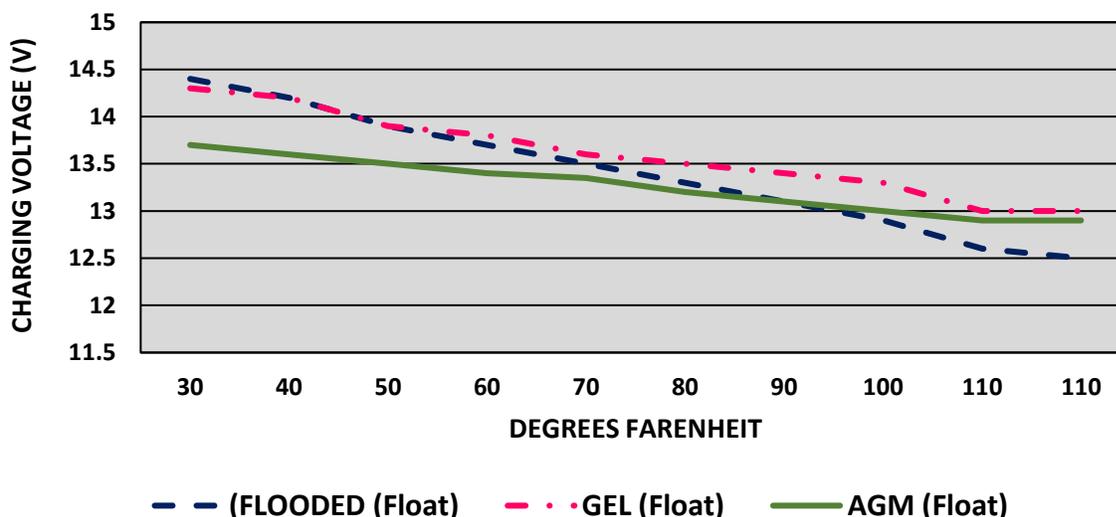
Despite being labelled 12 volts, the actual OCV reading of a fully charged SLA (12 volt) battery will actually read closer to 13.5 volts. In most cases an SLA (Sealed Lead Acid) battery is at 100% SoC (State of Charge); when the individual cells have reached 2.25v to 2.27v per cell. Some chargers will even allow the battery to reach 2.33 volts per cell.

However, post-charge, the OCV will slightly diminish from the initial reading; after the battery has rested.

Battery Type:	SOC (State of Charge Percentage (%))				
	0%	25%	50%	75%	100%
SLA (Sealed Lead Acid) - AGM (Voltage)	10.5	11.25	12.0	12.75	13.5

*Typical SOC (State of Charge) Reference Chart Example*

### Charge Voltages (Float) Level At A Give Temperature



**NOTE: Charging too fast, overcharging or charging with too high of a current will cause the sealed lead acid battery to boil off its electrolyte in the form of hydrogen gas, and can cause swelling/overheating. Additionally, because of the then reduced level of electrolyte stored in the absorbent glass mat of the battery, you will now have a battery with a high probability of premature failure.**

### PURGE VALVE - PRECAUTIONS

The SLA116 is equipped with a protective one-way “purge valve” that vents hydrogen gas when the internal pressure builds inside the AGM battery. This internal pressure builds when the liquid inside is subjected to an

**“Over-charging”** condition; which is typically a result of being **“Charged Too Quickly or with Too High of a Current”**. In addition, **NEVER ATTEMPT TO PRY OPEN** the purge valve covers. ***Doing so, along with other types of customer abuse will void the warranty of your Interstate Batteries product.***

## **SLA TESTING**

Relatively inexpensive “resistance based” testers are often used to test SLA’s as a result of them being convenient, quick and easy to use. They take a measurement at current state of discharge while measuring internal resistance and then use that to draw an inference to capacity. While they can detect some battery defects and voltage anomalies, they cannot be used to verify actual capacity performance, as that test requires a complete discharge of a fully charged battery.

***REMINDER: Be careful not to judge a battery as being “bad” based upon a simple resistance test. Resistance testing results can be adversely influenced by lead plate thickness, temperature, humidity, and the amount of tin or silver content used in the battery.*** Accurate testing can be tricky, a fast test is typically not the best or most accurate method for producing true results of a battery’s capability. Please reach out to Interstate Batteries at our Contact Center [contactcenteratibsa.com](http://contactcenteratibsa.com); if you are experiencing problems or need further information on suggested equipment that can be used for accurate testing results.

## **SLA1116 WARRANTY**

Interstate Batteries will warranty the SLA1116 battery against manufacturing defects for a 1-year period from the date of purchase and a full return value can be approved within one year of purchase. SLA batteries that are not able to perform above 80% of the rated capacity will be accepted as a valid warranty. Other defects recognized by this warranty include corrosion and leakage. ***NOTE: Swelling is not covered as it is evidence of over-charging the battery. If leakage occurs from a swollen battery it will also void the warranty due to over-charging.***