



Sealed Lead-Acid Batteries

AGM & GEL

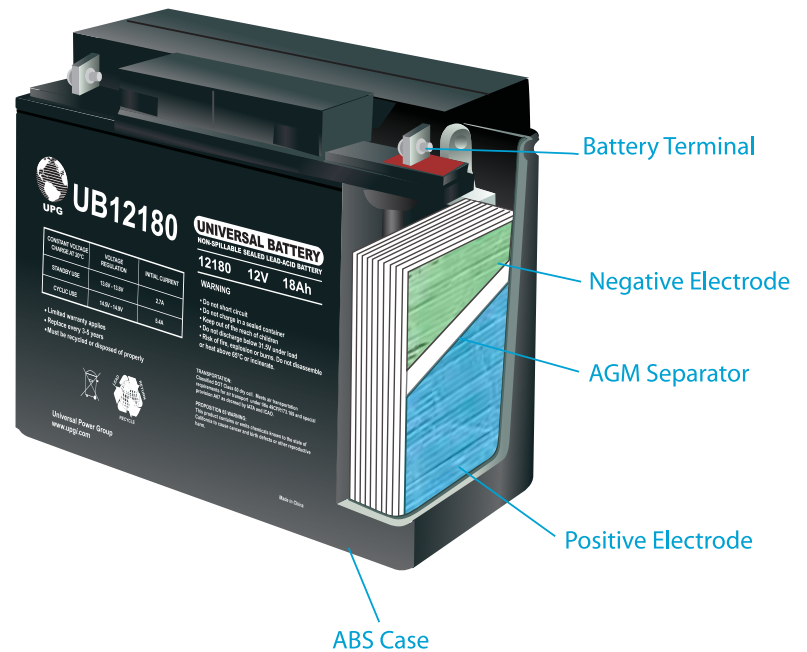


Features & Benefits

Our Universal line of AGM and GEL batteries are defined as Non Hazardous & Non-Spillable by DOT (Department of Transportation), IATA (International Airline Transport Association), and ICAO (International Civil Aviation Organization).

Our SLA batteries offer:

- ⊕ Outstanding performance, withstanding high current output and deep cycling.
- ⊕ Excellent resistance to vibration, shock, chemicals and heat.
- ⊕ Lower self-discharge.
- ⊕ Exceptional leak resistance even in an upside-down position.
- ⊕ Reliable power for critical applications.
- ⊕ DOT 60 classified for easy transportation.
- ⊕ UL recognized.



AGM & GEL Battery Design

AGM & GEL batteries are lead-acid and of the same battery chemistry (lead dioxide, sponge-lead and sulfuric acid electrolyte) but the electrolyte is stabilized differently.



AGM

The electrolyte is suspended in fiberglass mat separators which act as absorbent sponges.

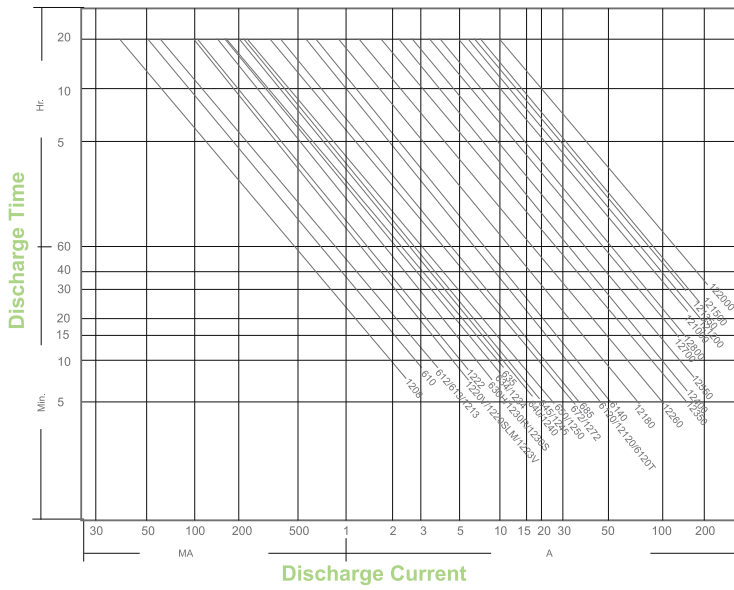


GEL

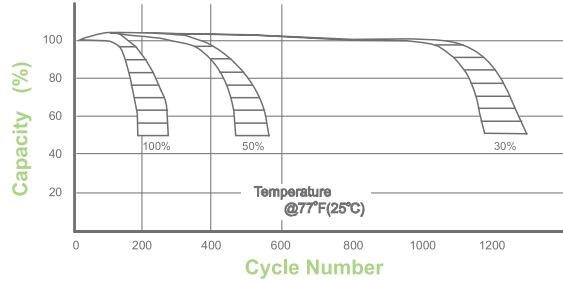
The electrolyte is suspended in silica-based gel as a thick pasty material.

Performance Characteristics

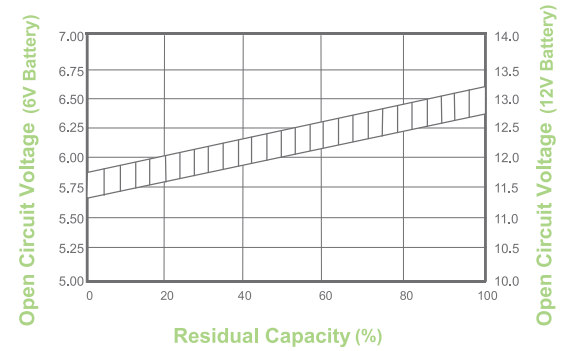
Discharge Current vs Time Curve 25°C(77°F)



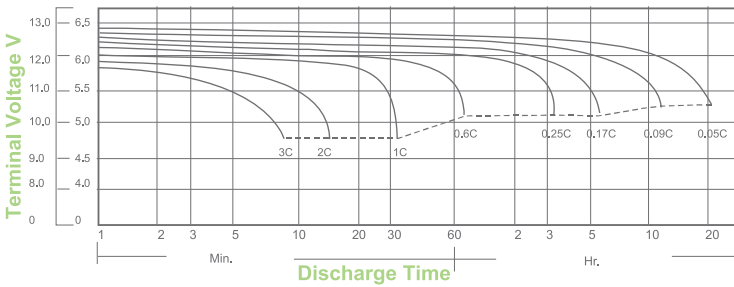
Cycle Life vs Depth of Discharge



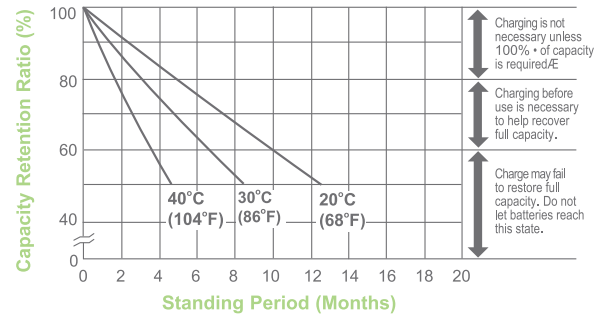
Open Circuit Voltage vs Residual Capacity



Discharge Characteristics



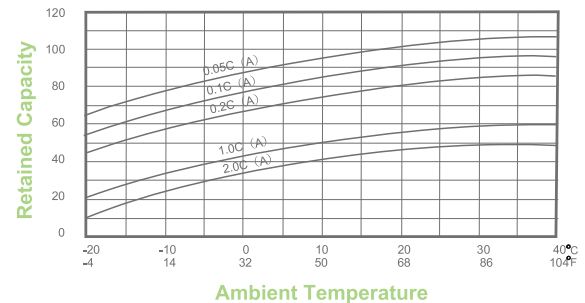
Shelf-Life & Storage Temperature



Discharge Current vs Final Discharge Voltage

Discharge Current (A)	Final Discharge Voltage (V/cell)
$0.01C > C_A$	1.90
$0.2 > C_A \geq 0.01C$	1.75
$0.5 > C_A \geq 0.2C$	1.70
$2.0 > C_A \geq 0.5C$	1.60
$C_A \geq 2.0C$	1.30

Effect of Temperature on Capacity



➤ For assistance, please contact a UPG sales professional at 866.892.1122 or by email at sales@upgi.com.

Terminal Configurations

F Series (Faston Tabs)

Dimension	L	W	w	H	T
F1	6.50 mm 0.26 in	4.75 mm 0.19 in	6.00 mm 0.24 in	5.00 mm 0.20 in	0.80 mm 0.03 in
F2	7.80 mm 0.31 in	6.35 mm 0.25 in	7.80 mm 0.31 in	6.00 mm 0.24 in	0.80 mm 0.03 in

P Series (Plastic Connector)

P2

Marine Combo Post

Flag Terminal (FL1)

Flag Terminal (FL2)

I Series (Internal Thread)

Dimension	M	∅	H
I1	6.00 mm 0.24 in	13.0 mm 0.51 in	4.00 mm 0.16 in
I2	6.00 mm 0.24 in	15.0 mm 0.59 in	3.00 mm 0.12 in
I3	9.52 mm 0.37 in	16.0 mm 0.63 in	4.00 mm 0.16 in
I4	6.00 mm 0.24 in	15.0 mm 0.59 in	4.00 mm 0.16 in
I5	9.52 mm 0.37 in	17.0 mm 0.67 in	4.00 mm 0.16 in
I6	6.00 mm 0.24 in	16.0 mm 0.63 in	4.00 mm 0.16 in
I7	9.52 mm 0.37 in	16.0 mm 0.63 in	4.00 mm 0.16 in
I8	10.0 mm 0.39 in	19.0 mm 0.75 in	2.00 mm 0.08 in
I9	9.52 mm 0.37 in	19.0 mm 0.75 in	4.00 mm 0.16 in

Z Series (Z Post Terminal)

Dimension	∅	∅1	H	h
Z1	17.0 mm 0.67 in	8.00 mm 0.32 in	21.5 mm 0.85 in	9.00 mm 0.35 in

S Series

S1

L Series (L Type Terminal)

Dimension	L	W	H	h	∅
L1	17.5 mm 0.69 in	7.00 mm 0.28 in	17.0 mm 0.69 in	7.00 mm 0.28 in	8.50 mm 0.34 in
L2	17.0 mm 0.69 in	9.00 mm 0.35 in	17.0 mm 0.69 in	9.00 mm 0.35 in	6.50 mm 0.26 in
L3	25.5 mm 1.00 in	7.00 mm 0.28 in	22.0 mm 0.87 in	10.5 mm 0.41 in	8.50 mm 0.34 in
L4	26.5 mm 1.04 in	8.00 mm 0.32 in	24.5 mm 0.97 in	12.0 mm 0.47 in	9.00 mm 0.35 in
L5	26.5 mm 1.04 in	8.50 mm 0.34 in	24.0 mm 0.95 in	10.0 mm 0.39 in	8.00 mm 0.32 in

T Series (Tab Terminal)

Dimension	L	W	w	h	∅
T3	14.0 mm 0.55 in	2.00 mm 0.09 in	12.5 mm 0.49 in	6.00 mm 0.24 in	6.00 mm 0.24 in
T4	12.0 mm 0.47 in	3.00 mm 0.12 in	12.5 mm 0.49 in	5.00 mm 0.20 in	5.50 mm 0.22 in

Battery Care

To properly charge your deep cycle AGM/GEL battery:

- + Active users: Charge daily.
- + Occasional users: Charge your battery before any outing, after active use or every 90 days if no use.
- + Only use with a specified charger. Only use appropriate charger to charge AGM vs GEL batteries as charging rates differ.
- + Never use an automotive or wet type charger on a AGM/GEL battery.
- + Top charge your battery frequently and/or leave on a charger/maintainer.

Battery Storage

- + Batteries should always be stored fully charged in a cool and dry place to maintain maximum service life.
- + Depending on storage temperature, batteries hold their charge for 3 to 9 months until recharge is necessary. Above 30°C (86°F), recharge at 9 months. Above 40°C (104°F), recharge at 3 months. Do not store above 40°C (104°F).
- + If a battery is stored for 9 months or longer without being charged, its service life may be shortened.
- + Never store batteries in a sealed environment or incorporate into a sealed structure/enclosure without adequate ventilation.

Usage Precautions

SLA batteries if used under recommended conditions generate no sulfuric acid gasses. However, because they contain lead and sulfuric acid, which are both toxic, proper care and handling is important in order to avoid accidental fires, damage to property, bodily injuries or even death.

- Improper charging and poor maintenance may cause battery to emit hydrogen gas. Therefore, do not use battery near a spark, fuse, flame and/or equipment that emits sparks.
- Never mix the SLA batteries together with other types of batteries, such as dry cells and nickel-cadmium batteries.
- Keep the battery terminals from contact with wire, metal cabinets, metal tools, such as screw drivers, spanners, torque wrenches unless they are properly insulated. Do not wear any watches, personal jewelry, hair pins or any other metallic objects when servicing the batteries.
- Short circuiting the terminals of the battery can cause burns, injuries, damage to the storage battery, or trigger explosions.
- Do not direct solder to terminal. This may lead to electrolyte leakage.
- Use of SLA batteries in the upside down position is not recommended.
- Do not use organic solvent, cleaning agents, paint/thinner, petroleum products to clean battery surface. These products can lead to battery container/cover cracking.
- SLA batteries may not be compatible with certain equipment. Any uncertainty about the specifications of the battery should be brought to our attention.
- Observe circuit polarities. Do not make or break live circuits.
- As appropriate, use an insulating blanket to cover exposed portions of the battery system when performing extended maintenance that could result in personal or equipment contact with the energized conductors.

Primary Power Applications

- + Consumer Electronics
- + Electric Vehicles
- + Engine Starters
- + Golf Cart
- + Hunting
- + Lawn & Garden
- + Marine
- + Medical Mobility
- + Medical Equipment
- + Motorcycles
- + Photography
- + Powersports
- + Portable Tools
- + Solar
- + Toys & Hobbies
- + Trucking
- + Other Portable Equipment

Standby Power Applications

- + Access Control Devices
- + Automotive & Cable Electronics
- + Emergency Lighting
- + Security
- + Telecommunications Equipment
- + UPS Systems

Specialized Applications

If your needs are specialized, we are able to custom manufacture batteries and chargers to meet your particular specifications. Tell us what you need and let us handle the rest.

Environmental Care

Improper disposal of batteries can lead to contamination of soil and ground water. At UPG, we work with authorized recyclers to pick up your "spent"/used batteries and we ensure that these batteries are properly disposed of by EPA licensed smelters.

Energizer® Chargers & Maintainers



- + UPG recommends using Energizer® Charger & Maintainers for charging and maintaining sealed lead-acid batteries in boats, motorcycles, ATVs, snowmobiles and other vehicles. Energizer® Charger & Maintainers conveniently and safely maintain battery charge while in storage without having to disconnect from vehicle.

UPG No.	Description	Charges and/or Maintains
84026	12V 1A Charger & Maintainer	12V 2.9 Ah - 12V 7.2 Ah Batteries
84027	12V 2A Charger & Maintainer	12V 8 Ah - 12V 12 Ah Batteries
84028	12V 4A Charger & Maintainer	12V 12 Ah Batteries and Up

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