

Innovative Energy Systems

DeSulfator Battery Conditioners

When a lead-acid battery is discharged, a soft, lead sulfate material forms on the battery plates. During the battery's recharge, this material is lifted off of the plates and recombined into the battery's electrolyte solution. If, however, the battery is left in a partial state of discharge for as short as 70 hours, the lead sulfate material will begin to harden and crystallize, forming a permanent insulative barrier. As this barrier becomes thicker, the battery's ability to accept a charge or deliver energy is diminished, resulting in the perception that the battery is no longer usable. The accumulation of such deposits, otherwise known as sulfation, is the most destructive process in the life of any lead-acid battery.

The DeSulfator battery conditioner is a pulse generator that extends the life of lead-acid batteries and increases their efficiency. Using its patented sweeping pulse process, the DeSulfator electronically eliminates and prevents this life limiting process. Batteries protected by the DeSulfator will provide more energy and last longer than any other battery. Designed to operate without taking the battery out of service, it connects directly to the battery. The DeSulfator emits a "sweeping pulse" of energy to the battery set. The frequency at which these pulses are emitted are tuned to excite the structural components of the sulfate deposits. This process enables sulfation to revert back into the electrolyte solution.

Simply attach the color-coded leads to the battery terminals. Its smart multi-plexing circuitry uses only a fraction of a watt to continually condition the battery. It does not interfere with any type of battery charging equipment and works on all types of lead-acid batteries including wet cell, sealed, gel-cell or absorbed electrolyte. Specify voltage when ordering: 12, 24, or 48. 12" lead length.

Braun's R&D, a subsidiary of Braun's Energy Products, who provides independent testing and evaluation to manufacturers of industrial and maintenance products, reached the following conclusions after testing the DS-500:

1. The sweeping pulse technology improves the performance of most batteries.
2. The sweeping pulse technology did not have any "negative" effects. The operation of the IES devices was transparent to the operators of all of the vehicles tested.
3. The DS500 Battery Conditioner proved significantly beneficial for most batteries.
4. The units were more beneficial to newer batteries over "seasoned" batteries.

We have used the term "most batteries" because the Sweeping Pulse Technology cannot restore a battery that has structural damage. During our field evaluation we encountered several structurally damaged batteries. It should be noted that several of the damaged batteries actually showed improvements in several tested areas, just not enough to return them to service. We defined "performance" in terms of available amperage and load voltage, i.e., higher available amperage and high load voltage values equals a "stronger" battery.

Although we did not directly measure reserve capacity and life span, we believe that the sweeping pulse technology devices will have a positive effect on these characteristics. We base this statement on the fact that these characteristics are directly influenced by the performance we did measure.

Model	Battery Capacity	Power Consumption	Dimensions	Weight	MSRP
DS-500	Up to 350 Amp hours	0.2 watts	2" x 3" x 1.5"	0.4 lbs	\$115.00
DC-1000	350-1000 Amp hours	0.4 watts	3" x 3" x 1.5"	0.6 lbs	\$169.00



DS-1000



DS-500

DeSulfator Advantages

- conditions battery
- increases battery life
- increases battery performance
- increases equipment reliability
- decreases battery replacement costs
- two-year warranty

Water Miser Vent Cap

Battery safety vent caps reduce the maintenance of constantly replenishing the water in flooded batteries. Condensing pellets within the cap capture and return electrolyte droplets into each cell during the charging to assure better electrolyte maintenance. A flip-top design allows easier watering without needing to remove the cap.

Model	MSRP
Water Miser Vent Caps	\$7.50



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