



COMSONICS®

Rechargeable Batteries & Getting the Most from Them

Recommendations
for ComSonic products:

WindowLite
WindowLite PLUS
WindowLite Installer
WindowLite Installer Digital
WindowLite Constellation
Window Digi-Touch
TDR Tech
Cybertek Qualifier Meter
Sniffer Sleuth Detector
Sniffer II Detector
Sniffer III Detector
Sniffer Shadow
Sniffer Sentinel
Sniffer Jr.

Battery Usage Guide

General Recommendations

Charge batteries with the appropriate charger.

Many instruments are powered by rechargeable batteries. It is very important to use only the specified charger with each instrument. Use of an incorrect charger may result in improper charging, battery failure, or damage to the instrument.

Fully charge new batteries before first use.

New batteries are not fully charged when shipped from the factory. Before using, charge new batteries for the time recommended in the user guide. Be sure to use the proper charger. Some battery types require new and stored batteries to be cycled several times before full run time is achieved. Use freshly charged batteries as soon as possible for the longest runtime.

Charge the battery within specified temperature range.

Batteries charge more reliably at or near room temperature. As a general rule, do not charge batteries when the temperature is below 32° F (0° C) or above 113° F (45° C). Batteries may not receive a proper charge or be permanently damaged by charging at temperature extremes.

Beware of self-discharge.

Rechargeable batteries have a self-discharge characteristic. Do not store charged batteries as they will lose capacity over time. Start using batteries within two weeks of a full charge. Do not charge spare batteries until they are needed. Store spare batteries at room temperature or lower, within storage limits.

Expect reduced instrument run times at temperature extremes.

Due to battery chemistries, use of the instrument at temperature extremes may result in reduced operating times. Different battery types are affected somewhat differently but all yield less output at temperature extremes.

Avoid storage at temperature extreme.

Do not store batteries where the temperature is below - 40° F (-40° C) or above 140° F (60° C). The temperature inside vehicles in the summer may reach temperatures exceeding 150° F. High temperatures increase the self discharge rate. Allow batteries to return to room temperature before charging.

Do not charge batteries for more than 48 hours.

Continued over charging of batteries may result in reduced run times, instrument damage, and early battery failure.

Treat batteries as hazardous waste.

Rechargeable batteries eventually lose capacity and must be replaced. Dispose of batteries in accordance with applicable Federal, State, and Local regulations.

Battery Type and Instrument

Lead-Acid	Nickel-Cadmium	Nickel-Metal Hydride	Lithium-Ion
Sniffer II Detector Sniffer III Detector	WindowLite WindowLite PLUS Sniffer Sleuth Detector Sniffer Jr.	WindowLite Installer WindowLite Installer Digital Cybertek Qualifier Meter TDR Tech WindowLite Constellation Window Digi-Touch	Sniffer Shadow Sniffer Sentinel

Lead-Acid (Gel Cell)

Lead-Acid batteries used in electronic equipment are sealed and use an internal gel material instead of a liquid as in automobile batteries.

Lead-acid batteries may be partially charged (topped off) without adversely affecting performance.

If the instrument is routinely powered from an external source, such as a vehicle, it is recommended to charge the instrument once a week for at least eight hours with the wall pack charger. This practice should help maintain the battery's condition. Do not exceed 48 hours as the battery may overheat and cause damage to the instrument by leaking chemicals.

Nickel Cadmium (NiCad)

NiCad batteries need to be fully exercised in order to achieve optimum performance. Charge new batteries for at least 16 hours, as they are shipped with only a partial charge. Do not use new batteries before they are fully charged, as permanent damage may occur.

Maximum battery life and performance is achieved by using the instrument until the low battery indication. Then charge the battery for the recommended time. Properly maintained, NiCad batteries can be recharged up to 1,000 times. But even with the best maintenance programs the battery will eventually need replacement.

If NiCad batteries are routinely charged before they are exhausted, they will not continue to produce their rated capacity. They develop what is called a 'memory'. The battery yields less than the expected runtime but may not be defective. This happens from not using it to capacity. It is usually, but not always, possible to restore a battery to its proper capacity. This is done by following the complete discharge and then complete charge procedures for three or four cycles. This should restore the battery to its best condition. Always use the instrument's low battery warning feature to determine when it is time to charge the battery. Do not discharge a battery pack to below its minimum level as individual cells within the pack may be permanently damaged.

Nickel Metal Hydride (NiMH)

NiMH batteries are essentially an extension of the proven sealed NiCad cell technology. Per size, they can store up to 50% more power, do not use toxic heavy metals, and are less susceptible to the 'memory' effects than the NiCad design. While they do yield higher performance than NiCads, NiMH batteries require more sophisticated chargers, can be recharged up to 500 times (compared to 1,000 times), and are more expensive.

New (and seldom used) NiMH batteries must be pre-conditioned for dependable use. This procedure involves at least three full charge and discharge cycles. Instrument runtime after the first charge may be as little as 25% of expected. NiMH batteries have a self-discharge rate that is slightly higher than the NiCad type. Do not final charge a instrument if it will not be used within the next week.

If possible, do not charge NiMH batteries until the instrument indicates 'low battery'. As with the NiCad types, NiMH batteries perform best if fully used. Occasionally, a top-off charge may be needed but doing this often may decrease battery life.

(Continues with Lithium-Ion on back cover.)

Lithium-Ion (Li-Ion)

The Li-Ion battery is currently the most powerful and lightest type available. They have no 'memory' effect, and do not use poisonous metals, such as lead, mercury, or cadmium. While Li-Ion yields much higher performance than other types, they require very sophisticated chargers, internal protection circuitry, and are the most expensive.

Since lithium is an unstable metal, special protection circuitry is built into each battery pack to prevent excessive charge and/or discharge currents that could cause the battery to burn or explode.

Li-Ion batteries can be charged whenever convenient, without the full charge or discharge cycle necessary to keep Nickel-based batteries at peak performance. They do not require pre-conditioning but if the instrument is not used often, perform a charge cycle about once per month.

As with other rechargeable battery types, Li-Ion batteries yield their best overall performance if used until the instrument indicates 'low battery' before charging. Li-Ion batteries can be recharged up to 300 times and have a life of about three years in high current drain applications.

When storing an instrument, place it in a cool place with the battery at about a 40% state of charge. Some reserve charge is needed to keep the battery and its protection circuit operational during a prolonged storage. A completely discharged battery may not charge due to the actions of the internal protection circuit. The protection circuit prevents excessive charging currents that otherwise may cause a fire or an explosion.

ComSonics, Inc.
1350 Port Republic Road
Post Office Box 1106
Harrisonburg, Virginia 22801 USA
Phone: (540) 434-5965
USA Toll Free: (800) 336-9681
Fax: (540) 434-9847
Email: marketing@comsonics.com
Internet: www.comsonics.com



© 1995-2005 ComSonics, Inc.
All Rights Reserved
Document No. 100791-001 Rev. D