

# MSA G1 Battery Frequently Asked Questions



## Alkaline Battery

*Why can't I mix alkaline batteries from different manufactures, isn't a battery a battery?*

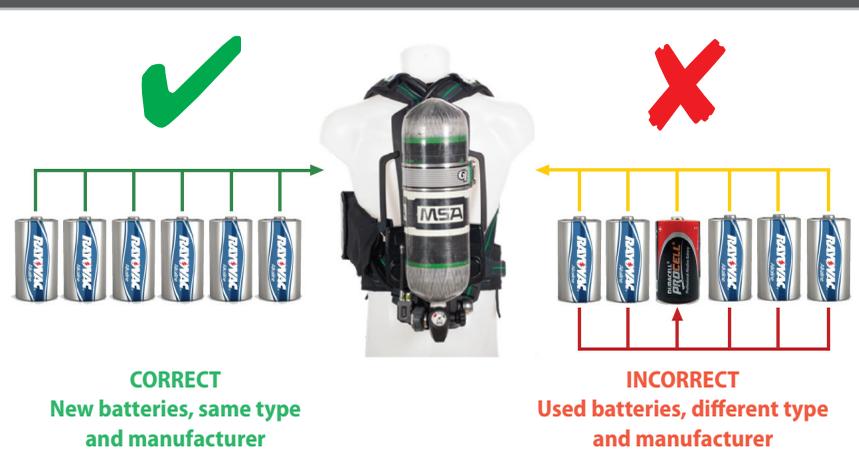
Different brands of batteries perform in different ways. The MSA G1 alkaline battery pack utilizes six cells in series. If any one cell is defective, providing a lower voltage, or performing in a different fashion, performance problems may occur. If a battery within the series presents variations in performance it will drain power from the remaining cells, causing the entire series to perform poorly and discharge at a much faster rate (See Right).

When replacing batteries, ALL six batteries must be replaced with FRESH batteries of the SAME TYPE AND MANUFACTURE. This is called out in the Maintenance Section of the Manual (page 90). Not doing so will result in very high battery pack impedance over time and lower than expected SCBA battery life .

### **What is alkaline cell impedance?**

Alkaline battery impedance is the internal resistance of a battery. When the battery is new it has low impedance and is able to provide full power. As the battery ages or discharges, its impedance increases and the amount of power that the battery can provide is reduced. The battery's impedance does not affect measured voltage until the battery is put under a current draw. Therefore, battery voltage measurements are not an accurate indication of the remaining battery capacity.

## Correct and Incorrect Battery Replacement



*Why does my G1 report a different charge level when it is powered up compared to when it is turned off and in sleep mode?*

Battery check accuracy is affected by impedance due to the difference in current draw between when the G1 is turned off and asleep and when it is powered up (a 100% increase in current demand). To get an accurate reading of remaining battery charge we recommend pressurizing any unit that is currently using alkaline batteries. The next release of G1 SCBA software will calculate the battery impedance and compensate for this difference.

*How will extreme cold affect the battery performance?*

As a general rule, cold temperatures reduce alkaline battery life. We strongly recommend you do not store your G1 SCBA in cold temperatures due the expected performance of alkaline batteries.

## Li-Ion (Rechargeable Battery)

*Is the rechargeable battery affected by impedance?*

There is no impedance effect with the rechargeable battery pack.

*Will the battery report the same charge if I check it when it is in sleep mode vs when it is pressurized?*

The battery check mode is accurate. The rechargeable battery pack has an on-board 'fuel-gauge' that calculates the remaining capacity.

*Do I have to charge my battery before its first use?*

As with most rechargeable battery packs, the G1 rechargeable batteries are shipped at between 30-40% capacity. This is a requirement set in place by the Department of Transportation. We recommend that all new G1 rechargeable battery packs be fully charged before use.

*How long does it take to charge my battery?*

It takes 6 hours to fully charge a rechargeable battery pack that has reached low battery alarm on the G1.

*Do I have to wait for the low battery alarm before charging? Will the life of the battery be affected if I don't?*

The user does NOT have to wait for low battery alarm in order to charge the battery pack. It can be charged at any time, and charging time will be dependent on how much the battery needs recharged. Recharging prior to reaching low battery alarm will not affect the life of the battery.

**How many charge / discharge cycles is the battery expected to provide?**

The cycle life of the G1 pack is a minimum of 400 full charge/discharge cycles. After 400 cycles, the capacity of the rechargeable battery pack will slowly be reduced over time.

**At what level do you recommend I charge my battery?**

MSA recommends charging your battery when it shows two bars (Yellow) remaining. Charging time at this level of battery discharge is expected to be 4.5 hours.

**How does extreme cold affect the rechargeable battery?**

As a general rule, cold temperatures reduce rechargeable battery life. However, the effect of cold temperatures on the rechargeable battery life is significantly less than that of an alkaline battery.

**Do I need to upgrade my G1 Firmware to use the Rechargeable Battery Pack?**

The G1 Firmware must be upgraded to V. 2.001 in order to use the G1 Rechargeable Battery. This latest update also includes the fuel gauge upgrade. This firmware can be installed using MSA A2 Software, which can be downloaded for free here: <http://us.msasafety.com/productSoftwareDownloads>.

**Can I use an alkaline battery pack interchangeably with a rechargeable pack in my G1?**

Yes, you can use the alkaline pack interchangeably with the rechargeable battery pack.

**G1 Battery Charger**

**What safety features are built into the G1 Six-Bay Smart Charger?**

To ensure temperatures are maintained at proper levels for charging, the unit will not charge if the temperature of the battery pack is less than 32°F or higher than 105°F. In this case, the charger LED will not light until the temperature is within these limits. The charger also contains a safety feature that will not allow it to accidentally charge alkaline cells. It recognizes the rechargeable battery pack and turns on the charging bay ONLY if the pack contains the proper identification component. Finally the charger will continuously monitor the battery for a full charge and shuts off the charging mechanism for that battery once this level is achieved.

**Do I have to take the batteries out of the charger when they have completed their charging cycle?**

Battery packs may remain in the charger indefinitely after charging is complete. The charger has a safety feature that shuts off the charging mechanism and monitors the batteries for full charge. They do not remain under constant charge when the LED is green.

**Can this charging bay be used in different countries?**

The charger power supply is universal and may be used anywhere in the world with the appropriate power cord.

Expected Battery Life To Yellow Battery Status: (In Weeks)			
Low Use Scenario: (one hour of use per month)			
	Base Configuration	With Telemetry OR Bluetooth	With Telemetry AND Bluetooth
Alkaline	23	22	21
Rechargeable	11.5	11	10.5
Average Use Scenario: (Two hours of use per week)			
	Base Configuration	With Telemetry OR Bluetooth	With Telemetry AND Bluetooth
Alkaline	7	6.4	5.9
Rechargeable	3.4	3.1	2.9
High Use Scenario: (Four hours of use per week)			
	Base Configuration	With Telemetry OR Bluetooth	With Telemetry AND Bluetooth
Alkaline	3	2.8	2.6
Rechargeable	1.5	1.4	1.3

*Note: These battery life estimates reflect all features of the G1 being used in factory default mode. Actual use conditions (# of PASS alarms, etc.) as well as changing the factory default settings (HUD time on, control module screen time on, etc.) may result in varied battery life performance.*

Note: This bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.



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