

CR2700 Series Scanner Battery FAQ

As the Code CR2700 Series of scanners continues to grow in popularity, some questions regarding the batteries in the scanners have come forward. This list of Frequently Asked Questions (FAQs) will help you understand the battery technology used in these new scanners and how best to maximize the life of those batteries.

What Type of Battery is in Our CR2700 Series Scanners?

The CR2700 series scanners use a lithium-ion battery pack. Lithium-ion batteries (also known as Li-ion batteries and abbreviated as LIB) are a type of rechargeable battery commonly used for portable electronics, electric vehicles, and in military and aerospace applications.

How Quickly Do the CR2700 Batteries Discharge When Not Cradled in the Recharging/Docking Station?

Any kind of battery gradually self-discharges even if not connected to a device and delivering current. Li-ion rechargeable batteries have a self-discharge rate typically between 1.5–2% per month.

What Is the Life Expectancy for The Battery?

The life expectancy of a li-ion battery is highly dependent on usage characteristics and environment. However, generally it should last for a couple years.

More specifically, the typical estimated life of a Lithium-Ion battery is about two to three years or 300 to 500 charge cycles, whichever occurs first. One charge cycle is a period of use from fully charged, to fully discharged, and fully recharged again. Batteries are not fully charged and discharged in normal usage (when frequently returned to the charging station) and hence defining battery life via full discharge cycles can be misleading.

Battery cycle life is affected by many different stress factors including temperature, discharge current, charge current, and state of charge ranges (depth of discharge).

Are There Best Practices for Managing the Life of the Battery?

Rechargeable Lithium-ion batteries have a limited life and will gradually lose their capacity to hold a charge. This loss of capacity (aging) is irreversible. As the battery loses capacity, the length of time it will power the product (run time) decreases. However, there are ways to manage the lifespan of the battery.

Here are some best practices to follow to manage the life of your batteries:

- Do not leave batteries unused for extended periods of time, either in the product or in storage. When a battery has been unused for 6 months, check the charge status and charge or dispose of the battery if appropriate.
- Observe and note the run time that a new fully-charged battery provides for powering your product. Use this new battery run time as a basis to compare run times for older batteries. The run time of your battery will vary depending on the product's configuration and the applications that you run.

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- Routinely check the battery's charge status. Carefully monitor batteries that are approaching the end of their estimated life.
- Consider replacing the battery with a new one if you note either of the following conditions:
 - The battery run time drops below about 80% of the original run time.
 - The battery charge time increases significantly.
- If a battery is stored or otherwise unused for an extended period, be sure to follow the storage instructions in this document. If you do not follow the instructions, and the battery has no charge remaining when you check it, consider it to be damaged. Do not attempt to recharge it or to use it.

How Should I Store the CR2700 Series Scanner & Battery?

If you plan to store the scanner and/or battery and not use it for extended periods of time, there are some tips for helping the battery maintain its life. These tips will not guarantee the batteries will last longer, but they will help.

- Charge or discharge the battery to approximately 50% of capacity before storage.
- Charge the battery to approximately 50% of capacity at least once every six months.
- Remove the battery and store it separately from the product.
- Store the battery at temperatures between 5 °C and 20 °C (41 °F and 68 °F).

How Can I Tell the Status of the Battery?

The following commands can be used to learn more about the status of a battery. You can send these commands to a scanner connected to a computer with the CortexTools application installed (the application can be downloaded from CodeCorp.com). You can also collect this data from multiple scanners (see the next question).

To execute these commands from CortexTools, click on the Advanced tab, and enter any of the following Configuration Control commands in the Send Packetized Data command text box:

- RDBIGBV: Returns the voltage (in mV) from the battery
- RDBIGCC: Returns the current (in uA) from the battery
- RDBIGAC: Returns the average current (uA) from the battery
- RDBIGBT: Returns the battery temperature (in Celsius). Li-ion batteries suffer from stress when exposed to heat. A battery dwelling above 30°C (86°F) is considered elevated temperature. Exposing the battery to high temperature can be more stressful than cycling.
- RDBIGBL: Returns the battery capacity percentage. Note: while percentage is easier to understand, it is not the most accurate way to determine the capacity of the battery as percentages can drift/change over time. The voltage command above is a better indicator of battery capacity.
- RDBIGLF: Returns the current battery health percentage. Note: Percentage decreases over the life of the battery and drops off drastically after 70%
- RDBIGCS: Returns the charge status from the battery. 0 = Not Charging, 1 = Charging.
- RDBIG: Returns the complete set of battery status parameters.

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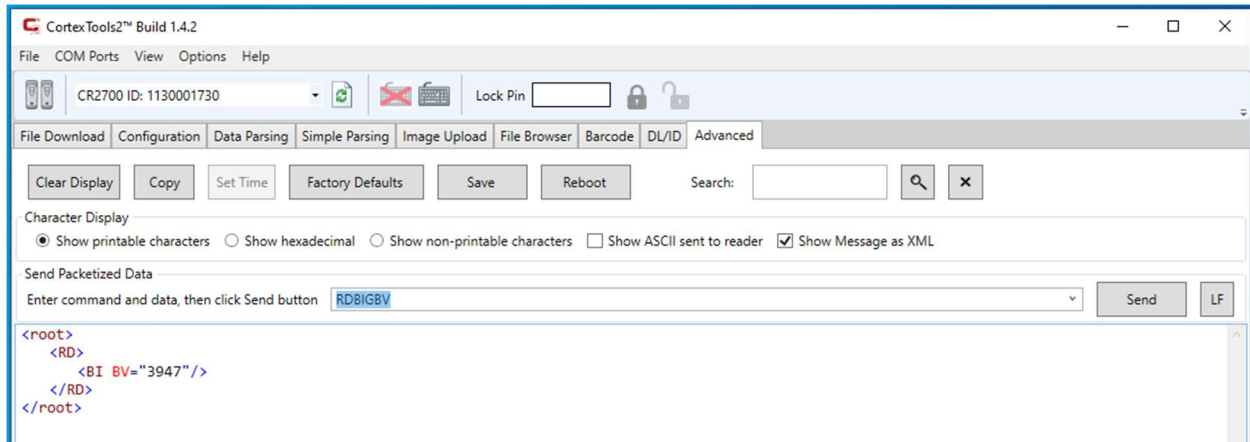


Figure 1- CortexTools executing the battery voltage command

The complete set of Configuration Control commands can be downloaded from CodeCorp.com.

Do I Need to Change Any Settings to Avoid Overcharging?

The Code Engineering Team has done a lot of work at the hardware and firmware levels to optimize recharging cycles and therefore avoid over-cycling the battery. Therefore, it is not necessary to change any settings to further optimize battery charging.

How Can I Better Manage My Batteries?

CortexTools includes a command line utility (CortexCL) that can be deployed separately to all computers that have a scanner attached. This utility can be executed and reported on remotely using common desktop management systems (e.g. Microsoft SMS, CA Unicenter, Ivanti , etc.)

There are a couple of Configuration Control commands that can be sent to the scanner to assist in the reporting of the batteries attached thereto.

- RDBIGSN: Returns the serial number on the battery.
- RDBIGDD: Returns the deployment date on the battery.
- RDBIXDS"1120": Sets the deployment date on the battery. Note: This command requires an input of exactly 4 digits of valid alphanumeric characters. Also, be aware that when using this command, it is safer to use a plain text editor (e.g. Notepad) as the “curly” or “smart” quote marks used by other editors (e.g. Microsoft Word) do not work with these commands.

What is the Warranty of the CR2700 Series Scanners and Their Batteries?

The standard warranty on the CR2700 series scanner itself is 3 years and is included with the purchase price. The warranty for the battery packs is 1 year.

Notes:

- Warranty on all products begins upon shipment to end user. In the absence of a valid warranty registration, the warranty will begin on the last product shipment date in Code’s records.

For more information, visit <https://services.codecorp.com/protect/>.

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Can I Get an Extended Warranty on the CR2700 Series Scanners and Their Batteries?

Extended warranties are available for purchase to extend the warranty to either 4 or 5 years. No extended warranty is available for the battery pack, but replacement battery packs are available for purchase and are easily replaced using the quick-release mechanism. Contact your Code sales representative for more information.

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