



Long-term Power Down for Dolby Cinema Products

Special attention should be given to certain products when it becomes necessary to power down for an extended period of time. This guide provides recommendations on leaving Dolby Digital Cinema equipment without power and what precautions should be taken to avoid issues once equipment is brought back into use. The information in this document is subject to change.

Products that require attention

Any device that contains a Media Block requires a battery backup in order to maintain the security identity when power is removed (server or projector is turned off).

Some devices have **rechargeable** batteries that receive a charge when power is applied but will start to discharge as soon as power is removed. If the battery reaches a discharged state, the security identity is lost, and the device can no longer be used for playback of encrypted content. When this happens, the Media Block will need to be replaced or sent back to Dolby for repair. Powering up this equipment regularly will charge the battery and prevent the security identity loss.

Some Media Blocks have **non-rechargeable** batteries. Long periods of time when power isn't supplied by the server or projector will slowly discharge the battery. Keeping this equipment powered will prevent the backup battery from being discharged. The following chart shows Dolby equipment and rechargeability information.

Product	Type of Battery Circuit	Battery life before potential security identity loss	Recommended power up interval
DSP100	Rechargeable	1-3 years	1 day every 1 month*
CAT862	Rechargeable	1-3 years	1 day every 1 month*
CAT745 (original battery)	Non-Rechargeable	1-3 years	N/A
CAT745 (with replacement battery)	Non-Rechargeable	7-10 years	N/A
Dolphin 1.0 and 1.2	Non-Rechargeable	1-5 years**	N/A
Doremi IMB	Non-Rechargeable	1-5 years**	N/A
IMS1000/2000/3000	Rechargeable	9 months	1 day every 2 months
CAT1600/CP850	Non-Rechargeable	3.5-4 years	N/A
CP650	Rechargeable	6 months	1 day every 4 months

* These devices have a rechargeable battery that holds approximately 6 months of charge, there is a non-rechargeable battery backup that will maintain the Media Block after the rechargeable battery is drained. Long "off" periods will adversely affect the time until the security identity is lost.

** The battery life for these Media Blocks depends on when the battery was last replaced. If the current battery is nearing its 4-year replacement window, Dolby recommends replacing it.

Table 1

Note that the table above assumes that the cinema is closed, and all equipment is powered down. Recommended figures quoted above are considered conservative and take into consideration extremes in temperature, component aging and variations in battery performance.

Products that are not shown in the table above are considered safe to leave without power for extended periods. This includes:

- Cinema Audio Processors (CP650¹, CP750, CP950)
- Servers without an internal Media Block (DSS100, DSS220, ShowVault)²
- Digital to Analog Converters (DAC3201, DAC3202, AUD-D2A)
- Dolby Multichannel Amplifiers
- Accessibility Equipment (receivers should be charged prior to reopening the cinema)
- Dolby TMS 5.0**

(¹) The CP650 uses a super-capacitor on the CAT774 board in order to maintain its settings after power loss. This super-capacitor will hold its charge for approximately 6 months, so it is recommended to power up the CP650 for 24 hours within a 4-month period.

(²) For all rack mounted servers, the motherboard has a battery for the backup of all BIOS settings and system date and time. These are CR2032 coin cell batteries and need to be replaced approximately every 5 years, however they can be replaced even after failure without loss of functionality. If the server halts its boot cycle with the error ‘CMOS checksum failure’ at the POST screen, replace the motherboard battery.

Media Block batteries can be replaced in some devices, others have batteries that are soldered directly to the board and cannot be replaced. If Media Blocks are powered down for long periods, the replaceable battery should be changed out before the long power down.

Replaceable Batteries

The following table shows each device that has a replaceable battery, the type of battery installed, and the model of battery to use as a replacement.

Product	Battery type	Approximate battery lifespan	Recommended Replacement Interval
Dolphin 1.0 and 1.2	CR1220	5 years	Every 4 years
Doremi IMB	BR3032	5 years	Every 4 years
CAT1600/CP850 (SN F4940714 and higher)	Tadiran TLH-5902	3.5-4 years	Every 3 years

Table 2

Note that the table assumes an approximate duty cycle of 18 hours on, 6 hours off. Recommended figures quoted above are considered conservative and consider extremes in temperature, component aging and variations in battery performance.

Maintenance precautions

Before powering down equipment in the above list for an extended period, it is recommended to take the following precautions:

All devices: If the products have been in regular use in the cinema (either powered up permanently or shutdown overnight) it is considered safe to leave them powered down for the durations listed in table 1. If the product is new/unused, consider that it may have been in stock without power for an unknown period of time. It is recommended to apply power for 48 hours before putting the unit back into storage.

Dolphin 1.0 or 1.2/Doremi IMB: After 4 years of use, the system will alert the user that it is time to replace the battery in a Dolphin or Doremi IMB. The system does not monitor the battery voltage, it only keeps watch on the last time that the battery was replaced. You can look at the MAINTENANCE LOG to see when the last battery replacement was recorded.

After replacing the battery, ensure that the event is recorded in the MAINTENANCE LOG to reset this timer. If you are putting a Dolphin/IMB into long term storage, check first that the battery is not close to requiring replacement.

Dolphin Battery Replacement Instructions: <https://dolby.box.com/v/Dolby-Dolphin-Batt-Replace>

Doremi IMB Battery Replacement Instructions: <https://dolby.box.com/v/Doremi-IMB-Batt-Replace>

CP850: The current battery voltage of the CP850 can be seen by downloading a set of logs from the CP850 WebUI.

You can then either upload the log to the Dolby log analyzer at <http://loganalyzer.dolbycustomer.com/> or you can unzip the archive and open the file `/tmp/info/SECURITY_STATUS` in a text editor. This file will contain the line:

Battery Voltage (V):

The battery can be considered healthy if it is between 3.3 and 3.7 volts. At 3.2 volts the battery should be changed (or the CAT1600 replaced) as soon as possible.

CAT1600 Battery Replacement Instructions: <https://dolby.box.com/v/Dolby-CP850-Batt-Replace>

Other Tasks

This may be the perfect time to perform server chassis maintenance. See the document here for Doremi servers: <https://dolby.box.com/v/Doremi-Server-Maint>

Questions and Support

Dolby Cinema Support is available to help during business hours (except holidays). For critical or screen-down issues, we always have a support engineer on call who will return phone calls.

Portal: www.dolbycustomer.com

Email: CinemaSupport@dolby.com

Phone: (always use the phone for critical issues):

Americas: +1-415-645-4900

Asia, China, and Pacific Rim: +86-400-692-6780

EMEA: +44-33-0808-7700

Japan: +81-3-4540-6782

Latin America:

Argentina: +54 11 5031 8725

Brazil: +55 11 4217 0358

Colombia: +57 2 891 2888

Mexico: +52 55 8526 2744