

ES/HS  
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# Long Term Storage Environment for LTO

Fujifilm LTO Data Cartridges are an ideal long-term archival media with a **storage life of 30 years or more**. To achieve the maximum shelf life, a data cartridge should be stored in a good and stable environment. Store data cartridges on their edge (reel axis horizontal) in their individual protective cases (if prescribed) whenever outside the tape system.

Keep data cartridges within a reasonable temperature and humidity range for both intermediate and long-term storage. A good environment for long term storing data cartridges is within a temperature range of 16°C to 25°C and relative humidity of 20 to 50 percent. The ideal environmental conditions for storage are non-fluctuating 20°C and 40% relative humidity. Please note that temperatures from above 52°C may cause permanent tape damage.

## Maximum Wet Bulb Temperature

As a user, you should be familiar with the "Maximum Wet Bulb Temperature" specification that is always included in hardware and media environmental specifications! Simply stated, any specified temperature & humidity ranges are limited by the inclusion of a maximum wet bulb temperature specification, such that:

- If the temperature is within the high end of the specification, the relative humidity must be in the lower range of its specification.
- On the other hand – if the relative humidity is within the high end of the specification, temperature must be in the lower range of its specification.

In other words, it is **not** permissible to have both Temperature & Humidity at the high end of their respective allowable range. Of course, it's best to limit exposure to the extremes at either end of any allowable temperature and/or humidity range.

You should always operate your equipment and store your media under the best conditions, not the extremes at either end of the allowable environmental range.

The stray magnetic field at any point on the tape shall not exceed 4,000 A/m.

In some countries, compliance requests that you must record the readability of the written data, so it makes sense to read the cartridges every 3 years for that reason and keep the record for that reason.

Proper environmental conditions for operation and storage will maximize media longevity.

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# Acclimation of LTO cartridges

Cartridges should be acclimated to the tape drive-operating environment before use. Allow acclimation time periods, at least equal to any time the cartridge was exposed to uncontrolled environments, up to 24 hours. The need for acclimation and the necessary acclimation time period will vary; this will depend on the difference in temperature and humidity between environments. Cartridges should be well packaged to protect against rapid environmental changes when leaving a controlled environment. This allows cartridges to acclimate slowly. Cartridges exposed to extreme environments during shipping (or improper storage) must be slowly acclimated to the drive's operating environment for 24 hours.

- The ideal 24-hour acclimation procedure is to keep the cartridges in their shipment packaging or shipping-container during the first eight hours.
- This will allow cartridges to adjust slowly (slowly acclimate) to the operating environment; unpack the cartridges for the second eight hours of a 24-hour acclimation period.
- During the final eight hours of a 24-hour acclimation period, the cartridges should be removed from their protective cases and can be prepared for use.

Even though the temperature of the cartridge shell may feel normal, the tape inside takes much longer to acclimatize. Humidity is important too; tapes are hygroscopic and acclimation is required to adjust humidity, not just temperature. Up to four days of acclimation, time may be needed after a longer exposure to extreme humidity. When the magnitude of any temperature and/or humidity differences between the uncontrolled environment exposure and the drive-operating environment is not so extreme, less acclimation time is needed. Adjust the above procedure by allotting one-third of any shorter time period to each of the described acclimation stages.

If lengthy exposure to extreme humidity, allow for additional acclimation time.

**Best Practice:** It is best to protect cartridges from extreme conditions by avoiding uncontrolled environments! However, when harsh environments are unavoidable, plan for acclimation time.

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