

Cinevator®

The first and only real-time digital film recorder and film printer

Only with the Cinevator® can you record a 35mm release print, complete with sound and subtitles, all in Real-Time!

The Cinevator is one of a kind. No other 35mm film recorder provides the speed, quality, features and versatility of this groundbreaking platform.

How it works

Speed

By utilising high-speed video and data interfaces, advanced image processing and a custom-built film transport, the Cinevator is able to expose 2K and HD images to film at a full 24 frames per second.

Quality

Uncompressed image data is ingested through a dual-link DVI or dual-link HD-SDI interface and a full 3 x 16-bit RGB data path is used through the entire processing chain. A custom designed, high-power LED light source and DLP® imaging engine guarantee superb colour fidelity and density, while a high-precision zoom lens provides flexibility in the chosen print format, an unsurpassed image quality on film and pixel accurate 2K and HD exposure without the need for digital scaling or interpolation. The Cinevator also provides full support for anamorphic image formats with inputs, data path and native recording resolution up to 2048 x 1744 pixels.

Direct-to-Print

In addition, the Cinevator®five provides subtitle and sound recording solutions: the heart of our unique Direct-to-Print functionality. Sound exposure is achieved using the same DLP technology found in our primary 2K imaging engine, allowing both Dolby Digital® and stereo optical soundtracks, as well as a DTS timecode track, to be recorded to film simultaneous with your picture. The addition of a live subtitle compositing engine makes this a truly versatile machine; with one device you can create master Digital Intermediate negatives, subtitled DI negatives and true 2K resolution release prints complete with sound and subtitles.

Benefits

The speed and flexibility of working in Real-Time opens up a broad range of new applications for lab and post-production facilities, especially when making use of Direct-to-Print recording. The technology is ideally suited for low volume release print, such as subtitled festival prints or re-versioning for international territory release. The extremely high image, sound and subtitle quality on these recordings make them perfect for use as premier or show prints. And all this is achieved while maintaining the speed or efficiency of working in Real-Time. With Direct-to-Print, produce perfect quality cinema release print without the time and cost of creating digital intermediate, optical sound and subtitle overlay negatives.



A flexible, future-proof platform

Each Cinevator film recorder is specified and manufactured to meet the particular needs of the customer. The base Cinevator recording platform is enhanced with negative, print, sound and subtitle options, along with specific film stock support as required, to create a system uniquely suited to your market needs.

Furthermore, the modularity of the Cinevator's design simplifies your upgrade path as new components and technologies are developed, ensuring that the Cinevator is a future-proof investment.

Cinevator Technical Specifications

Every Cinevator film recorder is individually specified and manufactured to meet the particular needs of the customer. Below is a list of general specifications and system functionality available on the Cinevator platform. Please call us to discuss your specific requirements.

Performance

Recording speed 24 / 25 frames per second for all supported recording formats

Image Source Interfaces

HD video Single or dual-link HD-SDI (RGB 4:4:4, YUV 4:4:4 and YUV 4:2:2)
2K Image data Dual-link DVI-D interface at RGB 8-bit or 16-bit depth
Certified dual link DVI players DVS Pronto or Clipster with 12-bit DVI option • DFT BONES CinePlayer

Control Interfaces

HD Source remote control RS-422 - Sony BVW-75 protocol subset / DB-9 connector
DVI Source remote control RS-422 - Sony BVW-75 protocol subset / DB-9 connector

Supported Film Stocks

Intermediate Negative Kodak VISION3 Color Digital Intermediate Film (2254 / 5254)
Kodak VISION Color Intermediate Film (2242 / 5242)
Fujicolor Intermediate Film F-CI (4502 / 8502)
Fujicolor Intermediate Film ETERNA-CI (4503 / 8503)
Colour Positive Kodak Vision Colour Print Film (2383)
Kodak Vision Premiere Colour Print Film (2393)
Fujicolor Positive Film ETERNA-CP (type 3513DI)
Fujicolor Positive Film ETERNA-CP (type 3521XD)

Film Handling

Film roll capacity 160 – 4000 feet / 50 – 1220 meter
Film transport system Servo controlled film transport and tensioning system
Automatic calculation of loaded reel length
Negative movement Pin-registered BH-perf movement (SMPTE 93-2005)
Print movement Pin-registered KS-perf movement (SMPTE 139-2003)

Imaging Engine

Light modulator DLP® by Texas Instruments
Native resolution 2048 x 1769 square pixels
Light source Self-diagnosing and auto-calibrating LED light source (RGB)
Light source MTTF > 25.000 hours
Optical system Servo controlled zoom lens
Dynamic range 2.046 Status-M density above D-min on all supported intermediate film stocks and in all Cinevator recording formats
Exposure area Academy and Super-35 (full aperture) native recording via precision optical zoom (SMPTE 59-1998, Style A, B & C)

Image Data Processing

Data path	Linear 3 × 16-bit RGB
Recording calibration	ID LUT with 10-bit colour resolution (RGB)
Sharpening filter	Factory loaded or user-defined 7 × 7 kernel

Recording Formats

Intermediate Formats	Negative and Interpositive recording on intermediate film stocks
Source / printing resolutions	1828 × 1556 2048 × 1080 1920 × 1080 2048 × 1556 1998 × 1080 2048 × 1744
	- All listed print formats are recorded without digital scaling or interpolation
	- Custom image formats or mapping may be available upon request
Cinemascope recording	Supports Cinemascope recording from flat source image formats

Sound Recording

Analog audio input	Balanced XLR input (+4dBu) for stereo analog recording
Analog audio format	Cyan-dye SVA optical analog soundtrack (high-magenta soundtrack exposure available as an option upon request)
Dolby Digital	25-pin (D-sub) Dolby CA-10 interface + balanced XLR input (Lt/Rt) *
DTS Timecode	Dual BNC interface to DTS Timecode Generator (Tach signal output + return timecode data signal) *
Sound imaging engine	DLP® by Texas Instruments / LED light source

Subtitle Recording

Subtitle recording	Optional for intermediate negative and print
Preparation software	Cinetitle® subtitle preparation software provided with subtitling option
Subtitling engine	Live subtitle compositing during image recording

System Software and Utilities

Host platform	Linux host operating system with RAID 1 fault tolerant disks
Image Job Editor	Job preparation and Cinevator management utility
AIM35	AIM creation and recorder calibration utility

General

Operation time	24/7 operation with scheduled maintenance
Safety	Compliant with relevant technical and safety standards in the EU and USA
Operating environment	Darkroom environment
Room temperature	18°C – 23°C (65°F – 74°F) with maximum variation 2°C / hour. Humidity 20% - 75% RH non-condensing.
Power connection	115 VAC ±10% 60Hz 16A single phase or 240 VAC ±10% 50Hz 12A single phase
Dimensions (WxHxD)	Approx. 1800 mm × 1930 mm × 877 mm (71" × 76" × 34")
Weight	Approx. 700 kg (1550 lbs)
Warranty	12 month 'Platinum' service agreement standard with all sales
Extended warranty	Extended warranty and service options available. Information on request.

* Dolby CA-10 and DTS Timecode Generator not supplied with system. Cinevation can assist in sourcing this equipment.

Key System Features

- Negative and positive recording natively at 2K and HD
- Support for common intermediate and release print film stocks from both Kodak and Fujifilm.
- Simultaneous recording of image, sound and subtitles on print.
- Uncompressed 2K images are recorded via a dual link DVI interface at up to 16-bit colour depth. HD resolution material is recorded via dual-link HD-SDI inputs.
- Custom designed, pin-registered film transport ensures superior performance, stability and steadiness.
- Quick and easy film loading with custom designed film plates and a fully accessible film path. Automatic detection of loaded and remaining film length.
- Imaging Engine based on Texas Instruments DLP® technology for unsurpassed image quality.
- Patented LED illumination system guarantees full dynamic range, colour fidelity with unsurpassed stability and an extremely long lifespan.
- Custom designed optical zoom system allows recording of all supported image formats at native resolution, removing the need for electronic scaling of source material.
- Intuitive LCD touch screen interface. Error tolerant, ergonomic and user-friendly design.
- State-of-the-art digital imaging technology built into a robust system to run 24/7 all year round.
- The reliability of the modular design gives rise to a low-maintenance system backed by a highly trained global service support team.

Key Applications

- Efficient and cost-effective recording of high quality Digital Intermediate negatives.
- Record multiple bulk-release printing negatives in record time.
- Create subtitled printing negatives for multiple international territories using the Cinevator's live subtitle compositing engine, all from a single "clean" master sequence.
- Re-version content for foreign territory release in a familiar non-linear editing environment.
- Use Direct-to-Print technology for low-volume release print runs to dramatically improve efficiency. Improve value for customers by removing the need for digital intermediate and optical sound negatives.
- Produce subtitled release prints for film festivals or low-volume foreign territory release, faster, cheaper and with better quality than any traditional film subtitling techniques.
- Provide customers with Direct-to-Print grading, VFX or subtitle recording tests without the time and cost of an intermediate negative and contact print.
- Create digital check prints for audience test screenings, double-head sound screenings, studio approval or international censorship, before committing to the time and cost of master intermediate and sound negatives.

Dolby and the double-D symbol are registered trademarks of Dolby Laboratories • DLP and the DLP logo are trademarks of Texas Instruments