

Prototype
ARRISCAN

Whitepaper ARRISCAN

Technology information

1. A New Film Scanning Concept and Technology

The new ARRISCAN will meet the film industry's needs in many ways. A new scanning philosophy combined with cutting edge technology enables film clients to drastically increase their productivity and to experience a new standard of quality in film scanning.

Due to its innovative design, the ARRISCAN is suited for almost any scanning application, including Digital Intermediate, visual effects, restoration, and archival.

ARRI is committed to meeting the high expectations of the industry and introduces ARRISCAN as an extension of the proven and respected ARRI Digital Systems product line. We are leveraging the technical expertise, experience, and logistics infrastructure of the worldwide ARRILASER team to bring unparalleled products and services to the digital film marketplace.

2. Film Transportation and Film Safety

What is the most important element the digital film production pipeline? It's the negative itself. The ARRI in-house engineers have taken care of developing technology and machine parts that offer **safe and gentle** film handling. The **film transport** features a proprietary film gate with an electronically-sensed mechanical

pin-registration for 3perf and 4perf material.

The film gate offers full aperture for 35mm film.

State of the art digital motor control ensures smooth and safe shuttling of film material.

Fail-safe procedures handle technical defects (for example, power down situation) and will protect the film strip at all times. Additional mechanical breaks for wind-off platter and feed platter guarantee the film's safety.

Several methods are used to avoid dust and dirt during the scanning process.

The entire scanning environment is **pressurized**, ensuring that opening and closing the scanner will keep the interior dust free and clean.

More techniques and methods are planned for the release.

With the ARRISCAN film loading is made as easy as possible. Loop building and transportation are handled by the scanner itself.

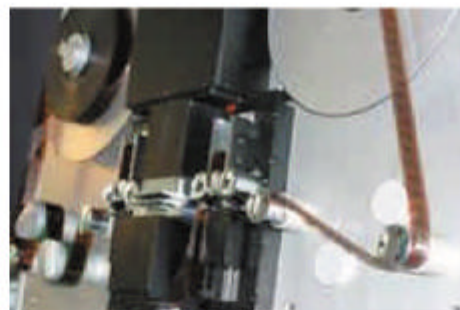


Figure 2.1: Filmgate

3. Image Quality

Several factors are crucial for image quality.

The key for excellent **color reproduction** is the light source. ARRISCAN uses LED illumination, which offers excellent color separation and long term stability. The LED power levels are digitally adjusted by an electronic circuit to maintain a constant level of illumination (closed loop LED calibration).

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Using LED illumination combined with a unique flashing technique ensures that the film material is not exposed to thermal stress. A uniform illumination is achieved by using an integrating sphere.



Figure 3.1: LED used in ARRISCAN

Linearity and geometry are important for a high quality image scan. ARRISCAN has a perfect image geometry across the entire film frame due to a CMOS area sensor that doesn't have geometric distortion problems.

The **CMOS sensor** that is used to generate the digital image is free of blooming or fading (known from CCD sensors) and delivers an unaltered and pristine image. Due to the technological characteristics of a CMOS sensor, it is much faster than its CCD rivals, which improves the productivity of the whole system dramatically.

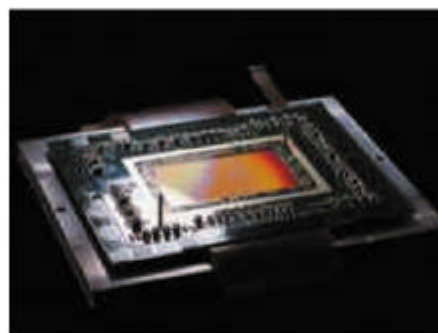


Figure 3.2: CMOS sensor

The CMOS is a large 35mm sensor that delivers '2k oversampled' and '4k oversampled' images.

4. Reliability (Solid Engineering, Stability and Support)

With the ARRISCAN, clients will invest in high quality and high speed equipment and also invest in future-proof technology developed by a well known and highly valued company, ARRI.

ARRI offers a well-established worldwide sales and support structure and has 86 years of experience in camera and film technology.

The components used for the ARRISCAN are well chosen, and ARRI has carefully selected hardware that offers the ultimate in reliability, and cost effectiveness.

The brilliant image quality gained from a closed loop calibrated LED light source; a distortion free CMOS area sensor as well as an almost maintenance-free system shows, that ARRI truly understands the needs of the industry. The hardware that is used (film transport, digital motor control, etc) is robust and solid.

The system's high productivity can be maintained over a long period of time.

5. Cost of Ownership and Efficiency

The ARRISCAN will be introduced to the market at a competitive price.

With an expected scanning speed of about 1 frame/s at 2k (at IBC 2003) you will have a fast system, that is meant to run offline.

The images will quickly be available in a network environment. The scanner can be used full time, doing hires work as well as digital rushes and is offering maximum productivity and a fast return-of-investment cycle.

6. Integration in existing Infrastructures

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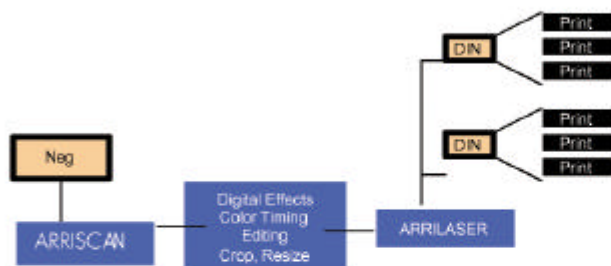


Figure 6.1: Workflow example

ARRISCAN outputs data in 10 bit cineon file format (depending on user feedback: 16 bit TIFF) and can seamlessly be transferred via Gigabit Ethernet to any postproduction workstation. The user interface to control the scanner will be similar to the ARRILASER software and can be operated remotely. The software will run on an open system (Linux). Loading and using of EDL files will be possible as well.

7. Future-Proof Technology

Some of the technologies described will be realized in the near future. The ARRISCAN roadmap is 'up and running'. ARRI plans to have the ARRISCAN in an early prototype stage at IBC2003 and then to be ready for the first beta site cycles later on this year. ARRI estimates to be ready for delivery early in 2004.

ARRI reserves the right to change the specifications at any time without prior notice.

Contact Information:
ARRI Cinetechnik, Headquarter Munich
Department TFE
(Research & Development)
Türkenstrasse , Munich
Germany
www.arri.de

e-mail:
Dr. Johannes Steurer
Director of R&D, Digital Systems
jsteurer@arri.de

Elli Bemt
Product Manager
ebemt@arri.de