

/i Technology

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Cooke's /i Technology enables film and digital cameras to automatically record key lens and camera data for every frame shot and provide it to post-production teams digitally. It streamlines production and post, saves time and cost, and eliminates guesswork while enabling greater creative freedom.

Using /i Technology Means. . .

You can have a continuous remote readout of the precise focus setting, T stop and depth-of-field from electronics inside the /i equipped lens so you will be able to see the actor in front of you and the focus setting on the lens beside you without turning your head or even having to move your eyes too much. ACs love it.

- You can digitally record vital lens and camera settings accurately, frame-by-frame, all synced to Timecode, instead of having to manually write down lens settings for every shot, eliminating human error. One task your script supervisor needn't worry about.
- Normal operations on set are not affected. Metadata recording takes place without having to monitor or manipulate anything. Data records to digital or film recording medium or to an SD card. No specialists required on set and the DP needn't worry about fussing with complicated accessories.
- You will streamline the production and post production processes to save time and cost while ensuring a better quality product because the digital data you can now provide takes the guess work out of the process. Artists create visual effects and 3D models that are more accurate, with much greater speed. Everybody wins -- ACs, DPs, Directors, Producers, VFX Artists – EVERYBODY wins.

Cooke's /i "Intelligent" Technology enables film and digital cameras to automatically record key lens and camera data for every film frame, which can then be provided digitally to post-production teams. The technology streamlines both production and post, saving significant time and costs and eliminating guesswork, while enabling greater creative freedom. /i Technology is standard on all new Cooke 35mm lenses: S4/i, 5/i and Panchro by Cooke lenses.

"This technology represents the essence of forward compatible, forward thinking meta-data support. Open source, anyone can use it, high degree of accuracy. Ten stars out of a possible five for providing for the digital future of cinematography. Bravo!"

David Stump, ASC, DP/VFX Supervisor

"The use of this data provides more accurate results in faster time and removes yet another element of uncertainty from the set-to-post information transfer process. Its use will allow more complex shots to be completed and will also allow new types of shots."

Michael Lancaster, product director, The Pixel Farm, www.thepixelfarm.co.uk

Continuous Remote Readout

With the Cinematography Electronics /i Lens Display Unit you can have continuous remote readout of the precise focus setting, T stop and depth-of-field from electronics inside the /i equipped lens.

Focus Pullers will be able to “see” where the actor is relative to lens focus and depth of field without turning their heads by using Cinematography Electronics’ /s/ Lens Display Unit in conjunction with their Cinetape.

Record Vital Lens and Camera Settings

Manually writing down lens settings for every shot is now passé. Focal length, focus distance, f-stop, frame rate – vital camera and lens settings are digitally recorded for every frame, at any frame rate up to 60 fps, film or digital, and stored as metadata.

Digital cameras that are /s/ equipped (RED, SI 2K, F35) and film cameras (Aaton Penelope, Ar-ricams) talk to /s/ lenses directly via contacts in their lens mounts. The /s/ Technology provides the framework; the extent of camera data made available is the choice of the camera manufacturer via their software and software upgrades.

You can record the same accurate, frame-by-frame lens data using cameras not equipped with /s/ Technology by using /s/ equipped lenses and the Cooke /s/ dataLink. Lens data records directly to an SD card in the /s/ dataLink box via a cable to the lens. Normal workflow and operations on set need not be affected. It is as simple as that. The /s/ dataLink information will automatically be stored for the day’s shooting without the DP or AC taking notice of it. At the end of production, take the SD card(s) to sync in post via Timecode.

“On set, we just plugged in the lens and the camera, and the box records. It’s completely transparent.”

Devon Dickson, DP

Post Production

Metadata is passed through to post-production to improve VFX creation and DI calibration. Post production artists can sync the lens data to the 3D camera data to produce a more natural looking 3D model of the shot significantly faster than using traditional manual processes and guesswork.

Improve Accuracy & Speed

“By having access to lens metadata, the PF Track software came up with a solution an order of magnitude faster than by its algorithms alone, and the result was much more accurate because it was based on real camera data. This workflow brings production and post infinitely closer and benefits both artistic quality and production time.”

Michael Lancaster, product director, The Pixel Farm, www.thepixelfarm.co.uk

More about /s/ and post production:

“Camera Tracking 101” by Michael Lancaster , Product Director, The Pixel Farm, developer of PFTrack 4.0 . (PDF)

/s/ Technology Partners

/s/ Technology is an open protocol, designed and developed by Cooke Optics. Our goal is to provide an open standard that will help streamline and enhance the process of filmmaking by making equipment digitally compatible from production through post. Look for the /s/ logo. Add your company to our growing list of partners:

Aaton

Aaton has built /s/ support into their Penelope 35mm camera for direct metadata capture via /s/ contacts in the lens mount. No need for /s/ dataLink.

Arri

Arri 435 Xtreme and Arricam cameras equipped with LDS have / ∞ contacts in the lens mounts. No need for / ∞ dataLink.

Avid

Avid Media Composer editing system takes lens metadata captured with / ∞ and passes it through to VFX.

For more about / ∞ and editing:

“Avid and / ∞ dataLink” by Michael Phillips, Principal Product Designer, Avid. (PDF)

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Cinematography Electronics

The Cinematography Electronics / ∞ Lens Display Unit interfaces the Cooke S4/ ∞ lens system with their popular CineTape Measure System, and adds lens data previously not available: actual measured subject distance. The focus puller will now know where the subject falls within the depth-of-field for the particular lens being used. This data is continuously updated and displayed for real time information. Pre-adjustment or pre-setting is never necessary. In fact, you can choose to display hyper focal distance, subject distance, focus marks, the entrance pupil position and angle-of-view – information that could save hours of prep time before a motion control shoot.

CMotion

With / ∞ equipped CMotion lens control systems, your zoom controller can communicate directly with your / ∞ equipped lens giving you iris, zoom and focus positions resulting in faster set-ups and more accurate control.

The Foundry

The Foundry’s forthcoming Nuke 6 release will have an in-built 3D camera tracker, to which the user can provide additional hints and constraints about the shoot to recreate the camera – for example, which lens was used. More: Shoot lens distortion grids with different focal lengths, and the / ∞ data gives you an accurate focal length. Use a lens tool to un-distort the plate, then use the camera tracker within Nuke to reapply this to the footage. Having the / ∞ data makes the tracking process much simpler, particularly since lens distortion changes with the zoom.

Mark Roberts Motion Control

The / ∞ Technology is incorporated into some of the Mark Roberts Motion Control remote and repeatable pan-tilt heads, such as the Ulti-head, so that while the cameraman is controlling the head, including pan, tilt, zoom and focus, the system can also accurately record the calibrated lens data using the / ∞ Technology. This data can then be fed through to post production to more easily add any CG (computer graphic) elements. Camera and lens motion data is often required for post production and the / ∞ data saves the cameraman or operator time in getting correctly calibrated data for the lens motion. The Ulti-head can be used on its own or with the larger MRMC products such as the Modula and the Talos rigs. See Mark Roberts Motion Control for more information about their products for film and broadcast applications, including the Academy Award winning Milo, Cyclops, Talos, Modula and Ulti-head.

The Pixel Farm

The Pixel Farm's PF Track software fully supports the $\frac{1}{8}$ system, syncing lens data with the picture to allow for better tracking. Not only does the $\frac{1}{8}$ supply real lens data, eliminating the software's need to have to solve for lens data, but the final picture is obtained faster and more accurately which means better quality and less cost.

Preston Cinema Systems

The FI+Z Three Channel Wireless System for lens and camera control uses $\frac{1}{8}$ Technology to show lens focus data on the display of the FI+Z Hand Unit 3 HU3. The lens is connected to the motor driver unit (MDR2) through an adapter cable (Preston Cinema accessory item). The MDR2 sends lens data over its microwave link to the HU3. Having accurate focus information transmitted directly from the lens at all times is a great confidence builder for the focus puller.

RED

RED has built-in $\frac{1}{8}$ support utilizing contacts in the RED camera lens mount for direct metadata capture. No need for $\frac{1}{8}$ dataLink.

Service Vision

Scorpio, 3 axis motion control heads incorporate $\frac{1}{8}$

Silicon Imaging

Coming very soon: the SI 2K camera will have built-in $\frac{1}{8}$ support utilizing contacts in the camera lens mount for direct data capture.

Sony

Sony has built-in $\frac{1}{8}$ support utilizing contacts in their Sony F35 camera lens mount for direct metadata capture. No need for $\frac{1}{8}$ dataLink.

Transvideo

Transvideo's CineMonitorHD now has built-in $\frac{1}{8}$ Technology that can display lens data on the monitor. A graphic representation of the iris, focus and depth-of-field is a great benefit to focus pullers in addition to the outstanding picture quality of the monitor. Watch for more options to come.

Supporting lenses:

- Cooke 5/ $\frac{1}{8}$ Prime Lenses
- Cooke S4/ $\frac{1}{8}$ Prime Lenses
- Cooke S4/ $\frac{1}{8}$ 15-40mm CXX T2.0 Zoom
- Cooke Panchro/ $\frac{1}{8}$ Prime Lenses
- Cooke RED Set
- RED 18-50mm Zoom
- RED 50-150mm Zoom