

FILM AND DIGITAL TIMES

The Newsletter and Survival Guide for High-End Film, Video and Digital Production



New Super 16mm Systems □ 3



XDCAM □ 5



Digital Intermediates □ 6

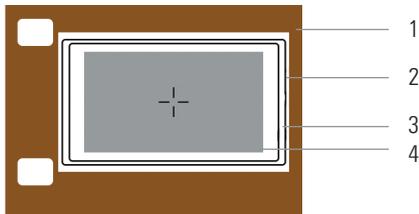


Sensitometry □ 8



Lighting with Paint □ 12

Super 16mm



1. Super 16 Exposed Film Area: 12.35 x 7.5 mm
2. 1.78 (16:9) Transmitted Area: 11.95 x 6.72 mm
3. 1.78 (16:9) TV Safe: 11.2 x 6.3 mm
4. Comparing 2/3" 16x9 HD chip: 9.6 x 5.4 mm

Big surprise at NAB this year: a major reincarnation of Super 16 mm. There are new cameras, film stocks, lenses and post production tools.

In the years since Rune Ericson figured out how to get his money's worth by putting image in an area previously occupied by a perf, filmmakers lucky enough to get theatrical release had to do optical blowups to 35mm.

The big idea in Super 16 is digital post. After shooting, your camera negative becomes a future-proof "digital archive." It's digital because you make digital dailies, edit and then decide to go on air, on the web, to DVD or theatrical. That's where it really gets interesting: scan the negative, conform, correct, and "print" out with a laser to 35mm film—at resolutions unheard of just a few years ago.

(cont'd page 3)

Higher Definition

It can take artist Astrid Preston (below) up to nine months to paint one of her luminous studies of leaves and landscapes. There's a parallel in the way she transports images from a three dimensional world onto a two dimensional space, done with great attention to detail, color, composition, light, and above all, sharpness and resolution. We're looking for tools and techniques as we hike the halls of NAB to achieve similar goals—moving images at higher definition to larger audiences on many platforms.

(cont'd pg 2)

ASC & FDT

We're including this NAB issue of Film and Digital Times with the April American Cinematographer magazine. The extra cost of printing and distribution has been made possible through the generosity of our sponsors.

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New HD Cameras and Lenses



Joe Dunton once said, "A camera is only as good as the lenses you put on it."

Zeiss, Canon, Fujinon, Cooke, and Angenieux—all the lens manufacturers have a new generation of high resolution lenses for HD. (Although the Standard Def lens of your BetaSP or DigiBeta camera shares the same size B4 mount as the new 2/3" HD cameras, chances are the resolution of older lenses will not cut the mustard.)

In December 2005, Band Pro delivered the 1000th Zeiss DigiPrime (the set for 2/3" HD cameras includes 3.9, 5mm T1.9 and 7, 10, 14, 20, 28, 40, 70mm CF T1.6).

They recently introduced a new Zeiss Telephoto DigiZoom 17-112mm T1.9 to complement the DigiZoom 6-24mm T1.9. The new 6.5X DigiZoom 17-112mm focuses to 22" from the image plane; 11" from the front of the lens, with a minimum subject size of 117mm (about 4.5") wide, and no breathing.

Canon has a new set of HD-EC 2/3" primes: 5mm T1.7, and 9, 14, 24, 35, 55mm T1.5. Canon HD zooms are 5.5-44mm T2.1-2.2, 4.7-52mm T2.1-2.7 and 7.5-157mm T2.1-2.9.

Fujinon HD primes are: 5mm T1.7, 8, 10, 12, 16, 20, 34, 40mm T1.5, and 54mm T1.6. Zooms include 5-15mm T1.6, 6-30mm T1.8, 10-100 T1.8 and 9.5-114mm T1.6.

Cooke has an S4 HD zoom 8-46mm T1.7 and the Angenieux 26:1 zoom is 7.8-203mm f2.2 (T stop TBD).

The mantra of lighter, smaller, faster for greater production value, ease of use and creative freedom is inspiring a whole new wave of cameras.



Development continues on 35mm format PL and PV mount, single chip digital cameras, mostly recording to Sony's dockable and/or portable SRW1/SRPC1 HDCAM SR "field acquisition system" at 440Mbps SQ mode, and 880Mbps HQ (dual stream SDI) with 12 channels of audio.

At NAB, Sony is introducing the HDC-3300, a three 2/3" CCD camera capable of 3x slow motion in full HD resolution of 1920x1080i and 720/180p. Well informed sources within the industry have been whispering, since December 2005, of a new Sony camera head that will represent the continuation of the F950 (using 4:4:4 SRW recording technology) CineAlta format in a camera never seen or heard of before. We know it's not 1", so we can assume it will remain B4 2/3".



Sony's CineAlta F900R is an update with, among other things, a smaller, lighter chassis, HD-SDI outputs and image inversion (when you want to use a behind-the-lens anamorphic adapter or other lens adapter that flips the image).



HD comes in many flavors (resolution, compression, price). At Sundance, the buzzing (not burning, because Sundance was all about buzz) questions were about the difference between HD and HDV.

One third inch chip cameras captured the imagination and wallets of indies who hope to shoot with the least, defer distribution decisions to later, and reap the most (in box office, fame and fortune). The contenders here are Sony's Z1 HDV camcorder (featured in FDT issue 3), Canon's H1 (above) and Panasonic's HVX200 (below).



Canon's HDV camera provides interchangeable lenses, including a zoom with optical image stabilization. Sony's HDV camera has an optically stabilized fixed zoom lens. And Panasonic's camera uses P2 PCMCIA-sized cards for up to 20 minutes of recording in 80 formats, including DVCPRO-HD 100.

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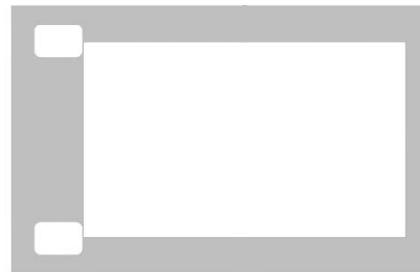
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New Arriflex Super 16mm Camera



Unofficially, and from various off-the-record sources, FDTimes has learned that Arri is working on a totally new Super 16 camera. We think it might be shown at NAB 2006.

None of this is official Arri information, and we may be walking the aisles of NAB with lots of egg on our face. If correct, however, this could be salubrious for the Super 16 film format. I think that this camera, Arri's 4th generation coaxial magazine Super 16mm camera, is going to be huge.

Actually, it's smaller and lighter than the 16SR3, according to sources. Not an upgrade of the 16SR3 to an SR4, it seems to be a completely redesigned camera, incorporating some familiar features of Arri's 35mm format cameras like the 235, 435 and Arricam.

If we see this camera at NAB, it will be a prototype, fanning the frames ...er... flames of desire. Like children denied candy, the more unavailable something is, the more many of us cinematographers will want to try it out once Arri starts its beta test phase.

Main Features

The big deal is ergonomics. The new camera is said to be much lighter and to have a lower profile than the 16SR3. The flat bottom has given way to the rounded, molded shape that made the 235 so popular.

It looks like there's a new, quick-change, 400' coaxial magazine that follows the curve of your shoulder. These magazines do not look to be interchangeable with the 16SR series—I hear the howls of current owners. But the advantages offered by new materials and technology for lighter and quieter magazines are compelling enough to move on from the 16SR mag design that goes back to 1976.

Two Models

Two models have been talked about—basic and wireless.

Basic is like the 235: it has a battery connector in back. The wireless model has integrated electronics like the FEM-2 radio modem on the 435 Xtreme and the Lens Data Box of the Arricam. Cable clutter is gone with its built-in radio receiver and lens motor receptacles. This model will appeal to neatness fanatics. You know who you are: you have California Closets and your garage is clean.

Viewfinder & Video Assist

The new camera's viewfinder looks very similar to the one on the 235, which makes us hope that it can use the 235 eyepiece, as well as the medium and short finder extenders. The finder's barrel diameter is definitely larger than the one on the 16SR3, so we can safely assume that Arri will deliver an improved viewfinder image.

The video assist also looks very much like the one on the 235, so viewfinder and video assist are probably independent of each other. That will let you go from handheld to Steadicam or remote head quickly. As with the 235, there's no need for a 100% video top.

There seem to be two 12 volt accessory outputs on the video assist, presumably to power an on-board monitor and a video transmitter at the same time.

Quiet and Speeds of 1-75 fps

The new camera is said to run from 1-75 fps. So, for high speed work up to 150 fps, the 16SR3-Highspeed will most likely continue to be available.

One very interesting fact, whispered by our sources, is that the new camera should be almost as quiet as an

Arricam, because it uses a new sound insulation method that we hope to check out in future issues.

The System

We are told that there will be a bunch of new Arri accessories for this new camera, and you can bet your budget that Denny, Otto, Alfred, Emery, et al are hard at work too. With a new Arri Super 16 camera that looks so much like its 35 mm siblings, it is safe to assume that many of the Arri 35mm accessories can also be used: Remote Controls, Wireless Remote Systems, matte boxes, rods and so on.

Lenses

Indications are that most PL lenses in the known universe will fit. Since the viewfinder sits higher above the lens port and is angled up, we should be able to fit lenses on this camera that were problematic on the 16SR3.

As with the 16SR3, there are a few lenses with long rear elements that might bang into the mirror shutter—so until we test them, proceed with caution. It has been pretty well documented which older lenses vignette.

Super 16 offers two advantages over 35: speed and speed. The smaller image area offers a mathematically faster aperture. And, of course, you probably can work faster. *See sidebar on page 4 about new lenses.*

Smaller, Lighter, Faster

Super 16 is a compelling addition to the choice of formats. It's fast, light, very portable and hand-holdable. This new camera should speed up production: smaller size, fewer cases, fewer vehicles, faster setup, with lighter heads, remote heads, tripods and support equipment.

New Aaton Super 16mm



March of the Penguins won Best Foreign Film at the 2006 Academy Awards. Shot in Super 16 with two Aaton XTRprods using 800' magazines, it is the largest grossing documentary ever made. The New York Times said it has made more money than all other nominees for best picture combined.

A film by Luc Jacquet, "Bonne Pioche" production, the cinematographers were Laurent Challet and Jérôme Maison.

So, confidence is as high, it appears, in Grenoble as in Munich, Vienna and Rochester for Super 16 production.

Jean-Pierre Beauviala and company have been hard at work on a new Super 16 camera to be introduced at NAB: the Aaton XTRprod2.

This information comes right from JP himself, complete with a discourse on the deficiencies of the pocket still camera he used for the photo above.

The new XTRprod2 will take two batteries: NiMH or Li-Ion. The bottom battery feeds the camera motor and video-assist. The top one powers accessories: lens motors and video monitor. Batteries can be paralleled for

replacement with no power interruption. On the camera right side, there's a Start/Stop control (red button), as well as Off-Speed and Run LEDs. A Fisher-2 socket provides power for the eyepiece heater.

The video assist, with its flicker-free progressive scan, produces the same vertical resolution with the camera running or stopped. It has a 3-Line VITC and character generator for audio-sync real time and video time-code insertion. A Fisher-4 provides power and video for an on-board monitor.

There are two Lemo-6 connectors for accessories, a Fisher-5 for user programmable RGB or Y-C (S-video) video output, and a BNC connector for PAL/NTSC video-out. In the mechanical department, a 15.8mm diameter rod holder locks in a carbon fiber rod for lens accessories. This keeps the front, dual 15mm rods free and dedicated for matte box and handgrip, which eliminates lens motor backlash. Also, the new side rod lets you mount an iris motor right up against the body, and motors can be attached without having to remove the matte box. (www.aaton.com)

S16 Lenses

Sharp, new Super 16 lenses abound.

For lightweight and compact zooms, there are two new third-generation Suzuki-modified Canon Super 16 zooms: 6.6-66mm T2.7 (10:1) and 10.6-180mm T2.7. (17:1). (www.sei8404.com/E-home.htm).

For Super 16 studio work or for a really wide aperture, Cooke is introducing two new rear adapters to convert their 35mm format zooms. Cooke's Rear Unit for the 20-100mm T3.1 converts it to 10.6-52mm T1.65 in Super 16. The other Rear Unit converts the 18-100mm T3 zoom to 9.5-53mm T1.6 in Super 16. (www.cookeoptics.com)

Cooke will soon announce rear unit converters for their classic 5:1 (20-100mm) and 6:1 (18-100mm) 35mm format Zoom Lenses. The 5:1 converter turns the 20-100 T3 zoom into a 16mm format 10-53 T1.7 lens. The 6:1 converter turns the 18-100 T3 zoom into a 9.5-53mm T1.6 lens. These are not lenses for holdholding; they are intended for very high quality studio-style production.

Arri and Zeiss have come up with five new T1.3 Super 16 format lenses called Ultra 16: 6mm, 8mm, 9.5mm, 12mm and 14mm. For longer focal lengths, use the set of 35mm format Ultra Primes (8, 10, 12, 14, 16, 20, 24, 28, 32, 40, 50, 65, 85, 100, 135, 180mm—T1.9) or Master Primes (16, 18, 21, 25, 27, 32, 35, 40, 50, 65, 75, 100mm—T1.3). (www.arri.de)

Cooke has two new SK4 Super 16 Primes: 9.5mm and 12mm T2. Of course, you'll want the rest of the set of 35mm format Cooke S4 primes: 14, 16, 18, 21, 25, 27, 32, 35, 40, 50, 65, 65SF, 75, 100, 135, 150, 180mm—T2.0.

The three new short and fast 35mm format zooms could be useful on the new S16 cameras: the Cooke CXX 15-40mm T2.0, Angenieux 15-40 Optimo T2.6 (www.manioptical.com), and the Arri/Zeiss Lightweight Zoom LWZ-1 15.5-45mm T2.6.

New Sony XDCAM HD



When I first saw it at Sundance, I suspected the Sony XDCAM PDW-F350 wasn't intended just for news, even though CBS and ABC had bought truckloads. The Sundance sighting suggests documentaries, event videography and independent productions with interchangeable lenses and compatibility with HDV cameras.

The Sony PDW-F330 and F350 join the tapeless trend, eschewing solid state media for much less expensive DVD-style Blu-ray optical media.

The PDW-F330 camcorder, with a list price of \$16,800, shoots high definition at 1080/59.94i, 50i, 29.97p, 25p and 23.98p. It also does standard definition at 480/59.94i, 480/29.97p and 480/23.98p or 576/50i and 576/25p.

The PDW-F350, list price \$25,800, adds a few more features, like variable frame rates of 4 fps to 60 fps in 1 fps increments.

Recording is similar to HDV, using MPEG 2, at user-selectable bitrates of 18, 25 or 35 Mbps. You can intercut XDCAM HD recorded at 25 Megabits per second with other HDV cameras on an Avid or FCP 1080i editing timeline.

Canon and Fujinon make 1/2-inch HD lenses. You can use HD 2/3-inch lenses on the XDCAM HD with the optional Sony LO-32BMT adaptor, which is mechanical, not optical, and increases your focal lengths by a factor of 1.37x (slightly tighter).



The XDCAM HD camera uses Professional Disc media, a DVD-type disc with 23.3 Gigabyte capacity inside a protective plastic cartridge.

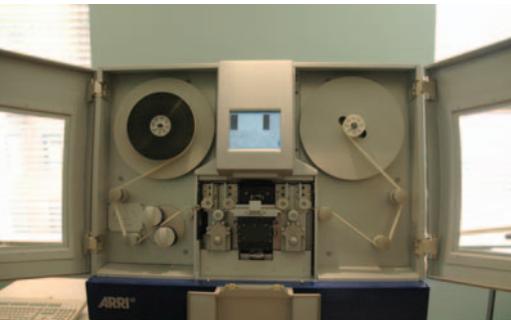
Although the technology is similar, consumer Blu-ray Discs, which are "bare," have lower read/write speeds, and are not compatible. The Professional Disc uses two optical heads for read/write speeds with a potential of 144 Mbps.

In contrast, consumer Blu-ray has a write speed of 36 Mbps, and standard DVD has a write speed of 11 Mbps. The disc inside an XDCAM media case is 12 cm in diameter and 1.2mm thick, just like a consumer DVD. But the XDCAM has five times the capacity, 13 times the transfer rate, and a shorter laser wavelength (XDCAM uses a blue-violet laser; DVD uses a red laser.)

The media has an archival storage life of 50 years.

You can erase selected shots, or Quick Format the entire disc in about 2 seconds—erasing everything. Ouch. Keep your fingers off that button, and use the write-protect tab diligently. The media is cheap, and using fresh discs is a lot smarter than re-recording over potentially priceless shots.

How to do a Digital Intermediate



Digital Intermediates are the magical cauldrons in the newly renovated kitchens of film and digital production. Iron chefs blend film, video and digital ingredients, mix in secret sauces, and serve the platters of film, tape, DVD and hard drives. The following is based on a job we're doing at Goldcrest Post Productions. Almost every job is different, and your mileage may vary.

We're using an Arriscan on this 90 minute 35mm feature. The Arriscan can record 2K or 4K, linear or log DPX files from 3K or 6K scans. We've chosen to work in 2K, recording at 1 frame per second to 10-bit log DPX files. The scanner flashes each frame of film 3 times, with a red, blue and green light source, and the image is captured onto a custom CMOS sensor.

Once set up, using an EDL, the scanner records selects from each roll of film pretty much unattended. Conforming and color correcting happens later. On the other hand, a telecine, like the Spirit 4K, transfers film to tape or digital file with the colorist adjusting for exposure and color as needed.

DI is actually a 3-step process:

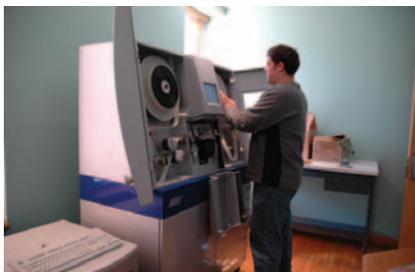
1. Scan or telecine the film, digitize the tapes, or copy your digital files onto hard drive.
2. Conform and color correct.
3. Record the finished show to film, tape or digital.

It starts with many boxes containing all the elements. Film, video dailies and EDL elements must be matched to each other and double checked.



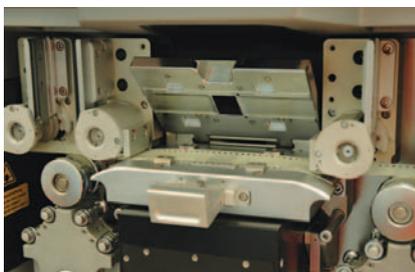
For this project, Tim Spitzer, above, makes a C Sort EDL from the Avid timeline sequence. The EDL is adjusted to provide an individual EDL for each flat of film to be scanned.

He loads the first EDL into the scanner. We use separate EDLs for each flat to minimize the negative handling; we only want to put each roll up once.



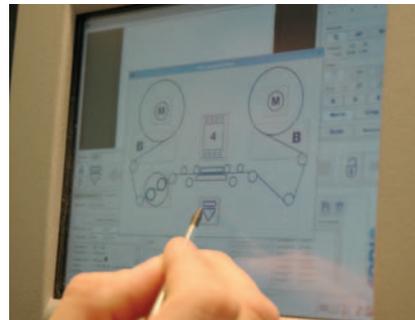
Cesar Mylo Hernandez threads up the scanner.

Next, he'll calibrate for the film stock being used. We shot with Kodak Vision2 camera negative: 200T and 250D.



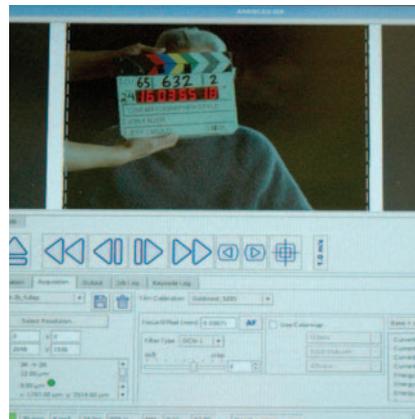
The gate is pin-registered for steadiness, just like most film cameras.

Use a Palm Pilot stylus to poke the input touch screen with information like A or B wind, size of cores, number of perforations per frame, and then close the gate. Touch "SCAN" to begin.



The Arriscan records the full dynamic range of the film—Dmin to Dmax. It's like a "raw" file and uncorrected. No lookup tables are needed, but they can be loaded.

The Arriscan comes with its own Linux computer, capable of storing 500 Gigabytes of data. But a feature requires more storage. We're sending our files to a large a Facilis Terrablock 7 Terabyte RAID array networked to the Arriscan.



Each frame is recorded to hard drive as a separate file, sequentially numbered. One 10 bit log DPX file is about 12 Megabytes. A 90 minute feature will take up about 4 Terabytes scanning at 2K.

Depending on whether you have a night shift, it takes a week or two to scan a 90 minute feature. This time will surely shorten as scanning speed increases in the future.

The next step is conform, final edit, dust-bust and color correct. Goldcrest is using a Quantel IQ for edit and conform, and then color correcting with Quantel's Pablo.



John Dowdell is our digital gaffer...er... colorist (above).

Using lookup tables (LUTs) that match the digital projector and the final print stock, he corrects each scene. The random access allows us to go back and jump forward the way we're accustomed in a nonlinear editing environment.



The original files from the scanner stay on the Terrablock. Our new, corrected and conformed files are stored on the Quantel.

Finally, the digital files will be used for all high definition deliverables, and DVD mastering and, using an Arrilaser, "laser printed" back out to film.

What if we had shot on HD, or wanted to mix film with HD, HDV, DigiBeta, BetaSP and DV?

You'd play back the tapes, digitizing into the Quantel (or whatever box and software you're using).

Convert to a common color space. The Quantel IQ can mix and match different files and formats.

Prepare your files.

Do your film-out.

John Dowdell on DI, Conform, Film-Out and Super 16

by John Dowdell, Director of Imaging Technology at Goldcrest Post Productions

The Arriscan strobes the LEDs twice. The first exposure is optimized to digitize the shadow portions or D-Min of the negative. The second exposure of RGB LEDs is ten times as bright and is optimized for the Highlights or D-Max of the negative. Software stitches the two scans together to produce a true 16 Bit Linear file capturing the entire film density and color range.

You can quote me that the scans are nothing short of amazing. The Arriscan offers me, in a non-linear world, far more imaging options than if I had the negative on a telecine. It has a natural sharpness with no enhancement. The new film stocks that have a tighter grain structure, so Super 16 can compete with 35mm image capture. We're scanning the Super 16 at 3K, downsampling to 2K.

Our Digital Projector is a Dark Chip DLP Digital projector. Color Timing to a projected image is less fatiguing, since you are not staring at a CRT monitor refreshing its scan 60 times a second.

The color gamut exceeds a CRT display, thus allowing LUTs to be applied to simulate a projected film print. The large image will alert you to image problems that a CRT might blur over. The large screen offers the director a better perception of the film's pacing.



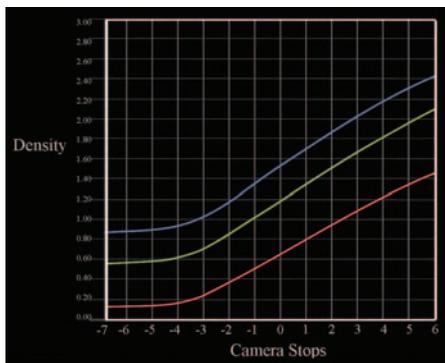
Tim Spitzer's 10 Commandments of D.I.

by Tim Spitzer, Managing Director of Goldcrest Post Productions

1. Thou shalt insist lab always puts timecode, user bits, roll number and date on the outside of each box of each flat of negative.
2. In telecine dailies, advance timecode in 15 minute increments for each flat of film. For example, flat 1 is 1:00, flat 2 is 1:15, flat 3 is 1:30. Flat 4 is 1:45. If you're shooting (rare) 2000' loads, advance it in 30 minute increments.)
3. Transfer no more than 4 flats per video tape for dailies.
4. Each tape starts with a new hour of timecode.
5. Punch each flat of negative at the head. Hole punch must be transferred and visible at keycode and ideally at head slate. (not in a needed scene)
6. Head slate each roll if possible. It really helps at lab.
7. Be sure to burn in the following visible information onto the video dailies: lower left= Keycode, lower right=Timecode, upper left=Audio Timecode, upper right=User Bits.
8. User Bits should be set for Tape Number. That way, when timecode repeats (because you only have 24 times before it does), you'll be able to sort out tape/roll number by userbit.
9. Do telecine dailies to Digibeta or DVCAM with audio at 48 KHz. That way, final audio can come off the Avid.
10. If the camera's magazine has been removed and replaced, sometimes the frameline shifts. When the video dailies operator rethreads, be sure to maintain continuous 3:2 sequencing of timecode.

Sensitometry in English

by Bart Durkin



Sensitometry is the measurement of how photographic emulsions respond to light and processing. Film manufacturers generate sensitometric curves based on a film's specific characteristics.

Having a basic understanding of “sensi” curves will enable a cinematographer to properly anticipate how a particular film will perform. For example, a cinematographer familiar with 5217, and not having had the opportunity to shoot 5212, can consult the characteristic curves in the technical data section of those films (www.kodak.com). If the curves are very similar in slope and dynamic range, the cinematographer will be able to avoid an unpleasant surprise in dailies. Print curves of different film stocks out on thin paper, and hold two of them up to the light to compare them. Of course, there is no substitution for testing an unfamiliar film stock, as the sensi curves won't reveal all of the imaging nuances of a particular film stock.



Especially useful is the characteristic curve known as ‘Camera Stops’. This curve allows a cinematographer to understand the useful range of reflectance values within a scene. Here is an example, at left:

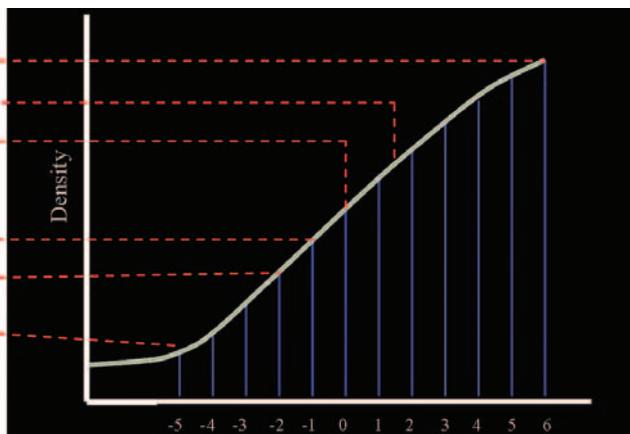
The vertical axis denotes density (how dense the negative becomes after being exposed to light and processing.) The horizontal axis is more familiar to cinematographers: the increments are in whole camera stops. The zero value on this scale represents 18% reflectance (mid-scale tone). The minus values represent one-stop increments going toward shadow areas, and the positive values are ascending toward highlights. If you're familiar with the Zone System, created by Ansel Adams, the zero value is Zone V.

If an 18% reflectance gray card is properly exposed, it will fall on the zero value. (Use a spot meter on a gray card.) You can see that color negative film has 3 separate color records, and each has its own curve.

The straight line portion of the curve represents a consistent gain in density with a corresponding increase in exposure. This is the “safe zone:” information that has to be rendered with textural detail, or that is important for your audience to see, goes here. The break-off point for shadow detail is where the curving line at the bottom flattens out, known as the toe. The shoulder is where the curve begins to flatten out in the highlight region. Beyond this point, highlight elements of your scene lose detail. These are the twilight zones for the edge, the daring or the eternally hopeful. The extreme points are called Dmin (minimum density) and Dmax, the maximum density which the film can achieve.

Bart Durkin is a cinematographer, works at Kodak, and teaches cinematography workshops in major markets around the world. He is perhaps the first person in film history ever to have explained characteristic curves in plain English. Pictures by Bart Durkin.

Example of a characteristic curve as it relates to an image: with various exposure points plotted along the way.



Super 16 and Digital Intermediates

by Michael Phillips and Lesley Glorioso

Welcome to the new “Ask Avid” column. Ask us about film and video post production: letters@fdtimes.com.

“We’re shooting an indy feature in Super 16, and want to finish in HD, but can’t afford to scan the negative. What next?”

Dear Indy: Here’s how independent productions can get the most out of the Super 16 format by combining it with HD finishing in HDCAM, D5 or HDCAM SR.

Super 16 production has increased substantially with the availability of Digital Intermediates, done by scanning the negative or transferring with a telecine. With an “HD-based DI,” instead of working with 2K scans, the footage can be used in a tape-based environment.

A video-based format can be faster, lower cost and include all the advantages of shooting film (look, dynamic range, archivability, etc.), without incurring the additional costs of a file-based infrastructure. It is ideal for the independent filmmaker who wants high production value while keeping an eye on the budget.



Digitize to NLE on a deck like Sony’s new HVR-M25U or the compact HVR-M15U. In addition to DVCAM, they handle HDV 1080i, and DV SP. Both accept mini and standard size cassettes, have HDV/DV Timecode Capability, and can downconvert HDV to SD in NTSC or PAL.

The process starts by transferring the dailies to DVCAM. We recommend that dailies be done as 16:9 anamorphic so the conform process will not only be frame accurate, but pixel accurate in the sense that the effects will match the same aspect ratio (titles, shapes, etc.)

Next, import the film transfer files (FLEx, Evertz, Aaton, ALE) into the project bins and batch capture. Once picture and sound are captured, and the editing process is complete, you can easily generate a Scan List with handles. Avid FilmScribe generates many types of lists; Scan is the list type to facilitate a file-based or tape-based workflow. Each element in the timeline is pulled with user-definable handles. Elements will only be pulled once, regardless of how many times they were used in the final sequence. A concise list of footage to be transferred or scanned is created for an efficient final conform process that minimizes costs in the telecine room.



Transfer the negative to HDCAM SR on a deck like Sony’s SRW-5500 at 440 Mbps, at 2.7:1 compression ratio in 4:2:2, and 4.2:1 compression ratio for 4:4:4. It also can simultaneously output HD and SD.

The original negative is then transferred to an HD format of your choice: HDCAM, D5, or HDCAM SR. There is no need to worry about matching source timecode or tape names during the transfer since the common denominator is the KeyCode® on the original camera negative. After the session, a new film transfer file is created and imported back into the original offline project.

Once these files are imported, the user must put all the retransfer ALE files into the same bin as the offline sequence. “Select All,” then go to the Clip/Relink dialogue box and select KeyCode instead of timecode. Once relinked, the sequence will point to the newly transferred sources, tape, timecode, etc. If the original 24-frame timecode from the HD masters were not logged, the user can recalculate the timecode by highlighting the Start timecode column in the bin for the all new sources and then duplicating (cmd-D or ctrl-D) into the 24TC column. During this process, the 30 frame timecode combined with the pulldown cadence of each clip is used to create the correct 24-frame timecode.

From there, the online process is very straightforward. A “Total Conform” of the sequence can be done by sending the bin or AFE to a Symphony Nitris or an Avid DS Nitris editing system to work in uncompressed HD or RGB 4:4:4, depending on the transfer. Or, if a more traditional linear online is preferred, a 24-frame EDL can be generated.

The features mentioned in this column are unique to Avid editing systems and provide a streamlined post production path for the independent filmmaker. The features can be found in all versions of Avid Xpress Pro, Avid Media Composer Adrenaline HD, and Avid Symphony Nitris. HDCAM SR 4:4:4 RGB support is planned for the upcoming Avid DS Nitris v8.0.

At Avid Technology, Michael Phillips is principal product designer and Lesley Glorioso is senior product marketing manager.



Cinematographer Kevin Lombard using the Cam Tram (left), making his moves on a fashion spot. When you can't find a ladder, use 2x4s.



You've just waded ashore with all your gear on the far side of the world. Production has nixed the Fisher 10 dolly and track. How are you going to make smooth straight moves?

Filmmaker Ned Traver came up the clever answer while stuck in traffic behind three trucks carrying extension ladders. "Aha," he thought, "parallel track." Ned built prototypes in his garage and brought them on location. Wherever he went, he asked for ladders. They must have wondered, "Why does this guy need so many ladders?" He found that

most ladders are between 13"- 17.5" wide. Ned went into business building the CamTram System. It packs into a Pelican #1600 Case (total weight 35 pounds), and adjusts to ride on surfaces from 13" to 30" wide: ladders, tables, counters, 2x4 lumber. It comes standard with a 100mm ball mount. Mitchell and 150mm ball mounts are extra. You can undersling the head. A motor drive should be available soon. (www.camtramsystem.com, www.abelcine.com)

Das Scope



Wasn't it Fellini who said, "Filmmaking is like painting with multi-colored gerbils—when they're all in place, one moves, and you have to start all over again?"

With the combination of P+S Skater and Scope, you'll save lots of time and get very elegant, smooth shots before those gerbils even think about moving into meal penalty.

From the people who make the Skater Mini Dolly among many other things (P+S in Munich), comes the P+S Scope, a very compact periscope/borescope/snorkel system. There are two versions: one with a B4 camera mount that fits onto HD and standard definition video cameras, and the other for PL or Panavision mount cameras.

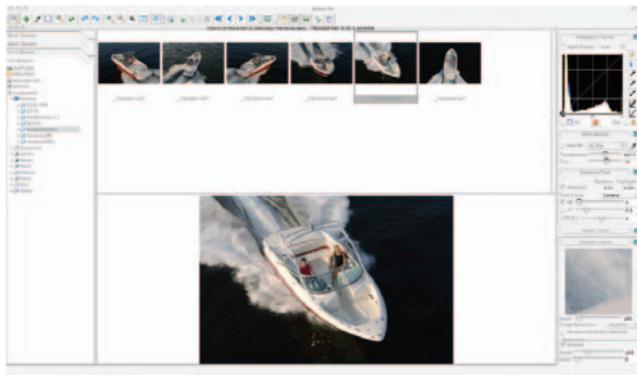


The Scope covers the Super35 format. True T5.6 aperture. Excellent image quality, extremely flat field and minimized vignetting, even stopped down. It is short and light, which helps eliminate vibration or oscillation typical of longer and heavier snorkels.

You can adjust the tilt element from -105 to +105 degrees. The lens block pivots a full 360 degrees, and there's full 360 degree unlimited optical image rotation.

On the front, you can attach PL, Panavision, Nikon or Leica M lenses by using different available mounts. (www.pstechnik.de), (www.zgc.com)

Raw Files



By Tom Reid, ASMP, DGA

OK, you're shooting digital stills in the pro "RAW" format to use in the Kodak Look Manager System. But what if you also want to use these raw files as JPEGs or TIFFs? What next?

Bibble (named after a large cat) started life as a pet project for the company's founder Eric Hyman. With Bibble, users can quickly convert to JPEG or TIFF, perform "after the fact" image manipulations, and correct white balance or exposure errors. Features include a built-in Photoshop plug-in, and blazing speed.

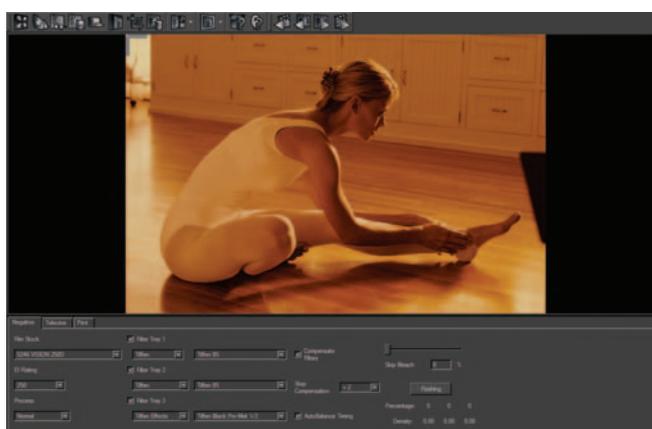
Raw is the best format for working with digital stills. As a commercial film producer and professional photographer, speed and accuracy are everything. When shooting RAW files, it's good to develop a "personal" way of working with the file format. Bibble Pro supports up to 70 cameras.

Bibble Pro offers extremely good color reproduction, with custom profiles of all the major cameras, along with Kodak tools and color management. While most other programs do a good job of "ripping" the files to a .tif or .jpeg, none match this one for the speed in which you can work through your raw files on any PC, Mac or Linux platform: up to 10 times faster than the manufacturer's original software.

I've used Capture One Pro, Nikon Capture, Adobe Camera Raw and Apple Aperture. I prefer Bibble Pro not only for speed, but also for color reproduction. You can browse the files, batch rename or convert to JPEG proofs or high resolution tiffs. Download a fully functioning version of the software to try: (www.bibblelabs.com). Also, check out more information on raw files: (www.openraw.org).

On my Nikon D2X, I shoot RAW + JPEG. I edit the JPEGs with the client via a web gallery and then work with the select RAWs in Bibble Pro. I can transfer the 16-bit TIFF directly from Bibble Pro to Photoshop and continue my work. Usually, I'm doing final color saturating, cropping and sharpening in Photoshop CS. Then we save an 8-bit TIFF for printing.

Kodak KLMS 2



Proving that version 2 of most software is a major improvement, the new Kodak Look Manager System 2 is a pleasure. The redesigned user interface lets you work in a familiar storyboard style layout. I like to work with two monitors.

KLMS2 is an intuitive tool to previsualize and share "the look" of your shoot. In the top screen, above, we imported and laid out digital stills of scenes after scouting locations. We used a Nikon D70s and our location manager used a Canon 20D.

Next, our homework begins. We can check various filter combinations, share images with the art director, see how all the different Kodak Vision2 stocks will compare, and decide how much detail to see in the highlights. The bottom screen, above, shows we're experimenting with Vision2 250D and double 85 filters compared with Corals.

KLMS2 should be as essential to every cinematographer as lightmeter and strong coffee. For film students, it is like a PhD in cinematography that enables infinite experimentation. There's a saying, "If you don't wake up at 3am on a shoot day with nightmares and heartburn, you're not pushing the film to the edge." KLMS2 will keep you on the edge and keep you from reaching for the Peppid. There's a lot more to KLMS, and we'll continue to explore it in upcoming issues of FDTimes. Free trial download: (www.kodak.com/US/en/motion).



Rembrandt Harmenszoon van Rijn. Self-portrait as the Apostle St. Paul 1661. Oil on canvas, 91x77 cm. Rijksmuseum, Amsterdam



Gordon Willis, ASC. Kodak Vision2 250D 5205

Lighting with Paint

Masters of Darkness

Rembrandt was a prolific painter of portraits: at least 75 were of himself. He was born in Leiden on July 15, 1606, the son of a miller. His parents, though poor, made sure he got a good education, enrolling him in the University of Leiden at age 14. He became bored, and dropped out to study art. He moved to Amsterdam in 1631, opening a large studio. In 1634, he married Saskia van Uylenburgh, cousin of a prominent art dealer, who referred many wealthy patrons. He bought a large house, lived extravagantly and in 1656 went bankrupt. The house and most possessions were auctioned off.

Looking at the portraits chronologically reveals an incredible emotional journey illustrated by facial expressions. Rembrandt painted his self portrait as the Apostle St. Paul about five years after moving to a run-down section at the edge of Amsterdam, where he lived in poverty. Perhaps he lacked the money even to pay models.

So, this portrait is definitely a low budget, independent production. No truck, no generator, no 20' x 20' diffusion frames. One of the few possessions they didn't get at the auction was his Lowel Caselite. Cleverly disguised as a suitcase, it contains a lighting unit with four 55 watt fluorescents. Rembrandt sets it up, unfolds a Matthews Road Flag to cut the light off everything but face and book, and positions the source so it's 90 degree sidelight. "Pretty dark," he says. "The producers in Amsterdam are going to hate it."

344 years later, in a very nice neighborhood, the largest grip/electric truck the world has ever seen backs down a precariously steep driveway. One slip of the brakes, and the very large, beautiful location house will be toothpicks. Gordon Willis, ASC, looks amused. "What's with all this stuff?" he asks. The gaffer explains that he's under strict orders not to scratch, blemish or scrape anything, and by lighting with big HMI PARs from outside, nothing with heavy metallic feet will touch the inside of the house.

"Too complicated," says Mr. Willis. "Just bring in one Kinoflo." So, one 4-bank 4-foot daylight Kinoflo it is. After it's all over, Mr. Willis asks the electric crew to turn the light off. "Aha," he says, "that's better, isn't it—no light at all." Next, the cinematographer known for lighting with less turns on a battery-powered Lite Panel. "Should have used this," he says.

Shedding Light

Lighting with fluorescents is efficient, fast, economical and lets you get close without toasting your subject.

With the Lowel Caselite4 (far right), the shipping case is the light. One half is the fixture, the other half holds stand, bracket, power cord and spare lamps. It uses 4 55watt daylight or tungsten (5300 and 3000 degrees Kelvin) fluorescents.

Ideal for documentaries and news, the head and lamps weigh 7.9 lbs (3.6kg). The entire Caselite4 with everything in it weighs 21 lbs (9.5kg).

Why didn't "they" think of this before? Matthews Studio Equipment Road-flags (near right) are the road-warrior's version of the venerable studio 4x4.

These 4' x 4' (122cm x 122cm) metal frames collapse into a portfolio-style, self-contained, easy to handle 28" x 50" (71cm x 127cm) case, and come with a "slip-on" single, silk, and solid, as well as optional silver and gold reflectors. (www.msegrip.com)



The Kinoflo 4ft. 4Bank (left) has a quality similar to a 1,000 watt soft-light—but it uses 1/10th the power.

It uses T12 (fat, round) lamps, available in 3200 and 5600 degrees Kelvin (Daylight and Tungsten True Match).

Although they cost more than the lamps you can pick up at Home Depot, Kinoflo lamps are color corrected, matched and consistent.

Sometimes you wind up shooting in factories, hospitals and places with lots of existing, overhead fluorescents, and replacing them all is out of the question. That's when it's helpful to ask for the friendly, local house electrician of the facility, and ask them to lend you some spares to put into your supplemental fixtures. That way, everything is all the same color temperature—it probably has a lot of green in it, but if it's all uniform, it's usually easy to color correct.



Head of Kinoflo, Frieder Hochheim sets up a Vistabeam (above). The Vistabeam is a very bright fluorescent; good for lighting people in front of bright windows because it's very punchy. It uses CFL compact fluorescent bulbs.

How did they do that?

Sparrow



Picture this: a commercial for Honda, chasing lead rider Ben Bostrom at 130 mph on the straightaway, and then slowing down to 110 in the turn. We're 18 inches away on a 14mm lens. Yikes—how are we going to do that safely on the front of a camera car?

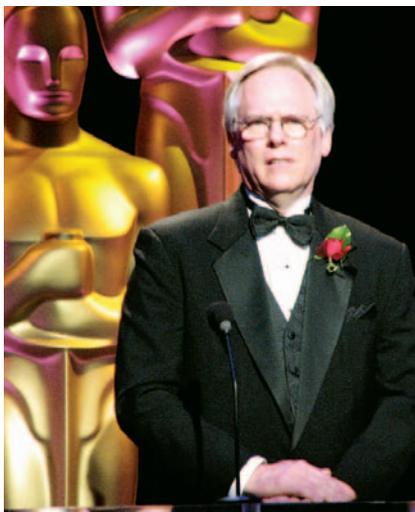
We're not. Instead, we call Gary Thieltges at Doggicam, rent a Sparrow Head 200, and mount the remote head and camera (combined weight of 32lbs with Arriflex 235, Doggicam 2C, Super 16 or light HD camera) to a chase bike driven by an expert driver.

Meanwhile, camera crew, director and agency are safely ensconced in the pit area, controlling all camera functions, including pan and tilt, with a custom-built microwave control, FCC approved and good from 1/4 to 1 mile depending on terrain (line of sight).

The Sparrow Head 200 operator's station comes with hand wheels or joystick control, operator's monitor, and Preston FIZ (Focus-Iris-Zoom) lens control. (www.doggicam.com)



Opening Credit: Gary Thieltges



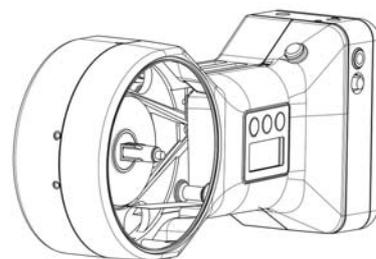
The envelope please.

Gary Thieltges got an Academy of Motion Picture Arts and Sciences Technical Achievement Award on February 18, 2006 for the design and development of the Sparrow wireless controlled carbon fiber remote head.

Raised on a farm in northern Montana, Gary has degrees in Psychology, Education and Film. As a cinematographer, he has shot nearly 2000 commercials. In the early 80's, he shot seven features, including *Eating Raoul*. He owned an award-winning vintage Ferrari restoration shop, and was a Southern California Formula Ford champion racer. He began designing motion picture equipment after developing the Doggicam and creating the company of the same name to bring new tools to cinematography and the industry.

Gary said, "I started the design process of the Sparrow Head with a blank sheet of paper. I didn't make a list of the technical problems I would need to solve, but a list of shots I had in my head that I had never seen on the screen. I designed the Sparrow Head to give creative minds the ability to imagine and create their own never-before-seen shots and share them with the world."

Ikonoskop a-cam Super 16



What's the lightest, smallest Super 16 camera you can find to mount on a model helicopter or weather balloon?

The Super 16 Ikonoskop a-cam SP-16 has been updated. From the birthplace of Super 16, Swedish filmmakers Göran Olsson and Daniel Jonsäter have created a camera that weighs 1.5 kg (3.3 lbs) with lens. While some cameras cost more than a fancy car, this one is cheaper than a Vespa: about \$6,250. With frame rates of 6, 10, 18, 20, 24, 25, 30, 36 and 37.5—the shutter is 160 degrees. It has a "C" lens mount, like Beaulieu, and Eyemo-style viewing. (www.ikonoskop.com)

Reflex viewing option, below, comes from Duall Camera in New York. (www.duallcamera.com)



And now a word about our sponsors and other news

We just heard that **Alfred Chrsosiziel** wants to spend more time sailing his boat in the Mediterranean, and has sold the company. He'll consult, and **16x9** continues as exclusive importer in the US. (www.16x9inc.com)

With plenty of parking, **Cinegear** will be at the Wadsworth Theatre and Grounds in West Los Angeles. Friday, June 23, 2006, 10am-6pm. Saturday, June 24, 10am-5pm. Masterclasses on June 25. (www.cinegearexpo.com)

The **New York Cine Equipment Show** is planned for October 10-11, 2006 at the trendy Metropolitan Pavilion in New York. (www.nyces.org)

Preston Cinema Systems has FIZ and Miroforce manuals online: www.prestoncinema.com

Get specs for **Fisher** dollies at: www.jlfisher.com

Lentequip has an optional firmware upgrade to its CanaTrans video transmitter: increase to 31 usable channels (ch. 20-50); newly designed user interface; quick menu for commonly accessed items such as channel selection, output power adjustment and video gain compensation; and full-time battery voltage reading on the main display. (www.lentequip.com)



Our next Film and Digital Times will be the mother of all lens issues, with articles by Denny Clairmont, Michael Bravin, Larry Thorpe, Bill Bennett, Mark Gershman, and many more. We'll look into the differences between designing a lens for one or three chips, back focus, testing, nodal points, etc.



The Production Equipment Rental Association has a helpful new website (www.peraonline.org). To find equipment almost anywhere, click on the Member Database. If you need, for example, a Kinoflo in Colorado, it will tell you where.

Credits

cover: Astrid Preston, oil on canvas, (Google: Astrid Preston at Artnet)

S16 diagram: Joe Christofori

Joel Lipton: photos page 2, right

Gordon Willis pictures: Brian Heller, Howard Phillips

KLMS: Scott Stevens, Kodak.
Additional sensitometry: Richard Carlson, Kodak.

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