Frequently Asked Questions about the Viper FilmStream Camera[tm]

How can I get an approximate impression of what the picture may look like as a final result?

There is a separate viewing channel in the camera. In this channel you can adjust settings like gain, white balance, and other camera settings.

This viewing channel is a bit comparable to a conventional video tap on a film camera

Please note that you only adjust the viewing channel, no changes are made to the FilmStream data representation of the picture.

How do I check my light levels?

Depending on what you are used to, you can rate the camera at a typical operating point e.g. 400 ASA for nominal conditions, and use your light meter.

Another method is to use the zebra pattern in the viewfinder that marks areas of the picture that are near the maximum sensor level. In that way, you can check that no important picture information is lost while getting the maximum performance with respect to noise.

Since the viewfinder is actually displaying the logarithmic signal, a third method is to check the viewfinder for "flattened" white areas. (When using this method, viewfinder contrast should not be set too high.)

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Is it possible to view the FilmStream data?

Although it is not really meant for viewing, it is possible to see the data picture.

The 4:4:4 RGB data stream is aligned as normal video. Also, the monitor synchronisation information is still there. Using a 444 monitor with dual-link HD-SDI inputs, you are able to look at the pictures, although you will see pixels that received no correction at all for white balance, gain, linear matrix, gamma correction, etc. The logarithmic characteristic looks a bit like a very strong gamma correction.

What you will see as a typical from the FilmStream is:

- A picture with a green cast on it, as 3-CCD cameras are most sensitive to green light
- No correction for color temperature
- Colors will be de-saturated (no matrix, very steep log transfer curve)
- Pictures seem to have a low contrast (like negative film it captures a wide dynamic range)

Remember: All processing and grading will be done in post-production, and the camera is just the tool to capture the image

What are the settings that need to be correct at the camera?

- Focussing
- Framing
- An approximately correct light exposure (although you have more tolerance than with video cameras)
- Shutter angle
- Optical filters (when used)

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What settings can be adjusted in post-production?

- All the camera video processing functions: Gain, White balance, Linear Matrix, Highlight Compression, Gamma correction, Contours, Skin Contours, Black Level, etc.
- The entire toolbox of popular post-production tools, but now you can work on linear 12 bit full-dynamic-range sensor signals directly

What is the ASA rating of the camera?

When used at the normal operating point of HDTV cameras the camera is approximately 300-400 ASA. But as the gain in post-processing can be changed, and you capture "linear in light", sensitivity of the camera can be changed at will in post-production.

Of course: more sensitive also means more amplification of noise. By comparison: using a more sensitive film has similar effects as using a higher gain in post-production with the Viper FilmStream Camera.

By underexposing the camera, the maximum amount of detail in highlights is preserved (at the expense of picture noise when finally, in post-production, the signal is amplified).

How do I get my SDTV copy for off-line purposes?

When using the Thomson Viper FilmStream Camera there are two options: either use the HD-SDI viewing output and down-convert to SDTV with external box (like the AJA HD10MD), or use the CVBS output of the camera.

What picture settings do I need for an optimal result in post?

No picture settings (!), just correct framing focussing and exposure, like in film.

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Is FilmStream a proprietary media transportation method of Thomson Multimedia?

FilmStream solely makes use of open standards:
- The logarithmic quantization curve is the industry accepted Cineon log curve, which is now in the standardisation process in SMPTE.
- Dual link HD-SDI is according to SMPTE proposed standard 372M now in trial publication. We use the 4:4:4 RGB 10 bit mapping.

FilmStreamtm is a registered trademark of Thomson multimedia S.A. We promote the use of the FilmStream interface since we see it as a very convenient way to transport real-time RGB-log, full-res, picture data. Therefore, any manufacturer or user is allowed to use the FilmStream interface and/or use the FilmStream name and/or logo under 2 conditions:
- When using the FilmStream name and/or logo the following message needs to be added: "FilmStream is a registered trademark of Thomson multimedia S.A."
- The FilmStream log curve as specified is used in combination with dual-link HD-SDI, and full resolution RGB. ("422"-like YUV is not allowed).

Can I record FilmStream on HD-video tape recorders like Voodoo, HD-D5, HD-CAM or DVCPRO HD?

No, FilmStream needs transparent, fully sampled 4:4:4 RGB to be recorded. This can be done on suitable storage media like disk arrays, or directly be fed into post-production workstations. It is essential that full RGB resolution is maintained, because bandwidth limitations cause irreversible artefacts. (Not just a loss of resolution but also the inability to restore the original scene as projected on the CCD. The mathematical explanation of this goes beyond the scope of this document.)