

Facts about the Viper FilmStream Camera

Questions relating to FilmStream operating mode

How can I see how the final pictures may look?

If you are using either FilmStream or HDStream modes, there is a viewing channel available as a separate output. In this channel you can adjust the colour balance to approximate the final result required. The colour temperature can be selected and fine adjustments can also be made.

When changes are made to the viewing channel the main camera output for recording is not affected.

You can consider the viewing channel output as being like a high quality video tap on a film camera.

What is the ASA rating of the Viper?

For more detail refer to the white paper "The Viper Exposed". According to how you would like to distribute the contrast in the scene you could select any ASA rating from, say, 80 to 1600. The "standard" sensitivity of the camera when shooting at 24p at 16:9 aspect ratio with a shutter angle of 180° is 320 ASA, which will give you a latitude of approx +4.5 stops to – 5.5 stops compared with 18% grey.

How do I check my light levels?

There are different options depending on how you prefer to work.

You could use a light meter in a very similar way to film using the sensitivity described above.

You could also use the viewfinder zebra signal as an accurate indicator of exposure level. In FilmStream operation this will show when a specified percentage of the CCD's range is reached, so 100% will indicate exactly when the CCD is reaching saturation.

What is the normal colour temperature setting on the Viper

The CCDs in the Viper respond directly to the light falling on them without any colour balance taking place. This means that pictures will normally appear to have a green tint, which is not balanced out at any colour temperature. This can be compensated in post production.

Optical filtering can be used to give a colour balance according to the colour temperature, e.g. for 5600°K a combination of CC60M and CC81B will give a good balance with a consequent reduction of just over 2 stops of sensitivity, and for 3200°K using CC60M + CC80C gives balance with a loss of nearly 3 stops sensitivity.

What picture settings should I use to give the best results in post

There are no camera settings to make other than framing and exposure decisions. You can make use of the electronic variable shutter if you wish to help achieve the exposure you want. In this respect shooting with Viper is very much like shooting with film.

How can I get an SDTV copy for off-line purposes?

There is a standard definition (CVBS) output available direct from the camera. This is derived from the viewing channel and therefore shows corrected video which could be taken to a recorder. Alternatively the high definition HDSDI signal could be down-converted using an external converter e.g. the AJA HD10MD.

Do I need several cables connected to the camera?

No, you can use a single multicore cable connected to a Break-out Box which can be up to 40m (130ft) away, from the BoB all signals are available to feed monitors, recorders etc.

Is it possible to view the FilmStream output?

Yes it is although this does not give an ideal viewing picture.

The FilmStream signal is electrically similar to RGB 4:4:4 video, including all synchronisation and can be viewed on a monitor which accepts Dual Link HD-SDI inputs. However what you will see has had no colour balance, no gain adjustment and no gamma correction or matrixing, instead you see a picture which has had a logarithmic curve applied (which looks like a strong gamma correction).

The picture has a green cast over it and lacks contrast and saturation but remember this will be corrected in post production where you can take full advantage of the wide latitude of the FilmStream system.

Can I record FilmStream on HD-Tape recorders like Voodoo, HD-D5, HD-Cam or DVCPRO HD?

No. FilmStream needs transparent, full bandwidth RGB 4:4:4 to be recorded. This can be achieved on suitable storage media like hard disk arrays, or be fed directly into post-production work-stations..

It is essential that full RGB resolution is maintained, because any bandwidth limitations cause irreversible artefacts.

Why are there other modes in the Viper?

Although the best possible quality is obtained when using the FilmStream mode, there are occasions when other ways of operating are needed.

Using the RGB mode still gives the full bandwidth of RGB 4:4:4 output on the Dual Link HD-SDI, but in this case the full range of camera processing is available within the Viper. This is useful when you need to get the finished picture directly from the camera head rather than waiting for the post production process.

HDSream mode is similar to FilmStream in that it uses no processing in the camera head, but in this case the output is a component 4:2:2 signal. Where the highest quality is not necessary, but the full latitude of the CCDs and flexibility of post-production processing is required, this gives a signal that can easily be recorded on existing tape formats. You still need to bear in mind though that these tape formats employ different levels of compression and are not transparent.

Finally YCrCb mode gives the fully processed camera output in 4:2:2 form.

Is FilmStream a proprietary media transportation method of Thomson?

FilmStream is a registered trademark of Thomson S.A., however it makes use solely of open standards.

- The logarithmic quantisation curve is accepted throughout the industry and is now in standardisation process in SMPTE.
- Dual-link HD-SDI is according to SMPTE 372M, within which we use the 4:4:4 RGB 10 bit mapping.

We promote the use of FilmStream interface since we see it as a very convenient way to transport real-time, full resolution RGB log picture data. Therefore any manufacture 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

