

A CLEANER APPROACH TO VIDEO

Samsung Techwin's SSNR Noise Reduction Technology

There are a number of issues when it comes to modern CCTV systems. One is that many manufacturers are trying to squeeze every last drop of low light performance out of cameras. Another is that those involved in digital archiving want ever smaller file sizes without compromising on overall image quality. These two points might seem far removed from each other, but it could be that Samsung Techwin's SSNR technology can offer benefits on both fronts.

The first point to note here is that this test is not looking at a camera. It is concentrating on a technology that Samsung Techwin has introduced to a number of cameras within its range. The technology is SSNR – Samsung Super Noise Reduction – and is designed to do what it says; reduce noise in video images, especially under low light conditions.

Reduced noise in video images has a number of effects. Firstly, images are cleaner, sharper and retain more detail, and as the whole reason for using CCTV systems is to capture and use images, this is certainly a desirable benefit. Secondly, when images are captured in low light applications, it is usually the high levels of noise which make them unusable. Therefore, if the level of noise can be eliminated, or even greatly reduced, the performance of a camera will obviously be greatly enhanced. Finally, reduced noise can help to keep image file sizes down when recorded digitally. This is because image compression works by looking for redundancy in images. This can either be a lack of motion and change, or areas of continual tone, depending upon which algorithm is being used. However, image noise is perceived by the compression engine as being change or a varied area of tone, and subsequently file sizes are larger as there is less redundancy. However, where noise is eradicated, image file sizes can be greatly reduced.

As such, SSNR not only benefits the system with regard to image capture, but also in regard to low light performance and digital video archiving. Therefore, it does represent a significant step forward for installers.

On-board processing

Samsung Techwin's SSNR technology is a standard feature on four models: the SVD-4120A vandal resistant

static dome (this was the camera we used for our test process); the SHC-721A day/night camera with wide dynamic range; the SDN 500 day/night camera; the SOC 4120A day/night camera with wide dynamic range and an integral varifocal lens.

SSNR is simply set via the on-screen menus. It has four settings – low, middle, high and off. Samsung does warn that in some circumstances an 'after-image' may occur. We are not sure what they mean by this, but there was certainly no ghosting effects or other untoward aberrations in any of the tests that we carried out.

Interestingly, the inclusion of SSNR receives little more than a passing mention in the manuals. This is surprising given the capability of the function. The majority of manufacturers would be shouting it from the rooftops if they had an equivalent signal processing option, but Samsung Techwin seem content to keep it somewhat in the background.

Which is where it sits operationally – in the background. When deployed, there is no sign of the extra processing that is taking place – apart, of course, from the vastly and rather impressively better quality image. We did half expect the performance to 'creak' a little when the additional processing was being used, but there was no deterioration in any aspect of performance at all that could be detected.



■ *The SVD-4120A features SSNR technology, which gives exceptionally impressive images in very difficult environments.*

The actual image quality that results from the SSNR technology is very impressive. Although tests usually involve running equipment alongside what PSI considers to be technologically advanced products with a similar specification, there was little reason to do this with SSNR, as the camera's performance could be judged with SSNR disabled. However, curiosity got the better of us and we ran the unit against a leading camera with very good low light performance. The verdict was well and truly in favour of SSNR!

In very low light settings, the images remain clean and sharp. Even when the light level falls sufficiently for colour information to be lost, the camera – on the highest setting – still delivers a clean image, albeit one with increasingly less useful information. In such circumstances, however, the Sense Up function can be employed to boost the sensitivity.

In short, SSNR ensures that images are usable in very poor lighting, and the lack of light makes the image unusable long before the noise does! Ghosting is not an

issue, and the system copes very well with motion without any of the usual problems which are experienced with over-processed images.

Fine detail remained strong in the image, even in near darkness, and it is a somewhat strange sensation to see an image from a very dark room with no major noise problems!

In summary

SSNR is probably the best noise reduction technology we have seen. It works in the background, and doesn't have any obvious side effects. Image clarity is certainly enhanced and we were left at something of a loss as to why Samsung Techwin doesn't make more of the feature. At a time when digital signal processing is pushing the boundaries with regard to CCTV cameras, SSNR makes a lot of sense, especially considering some of the other steps installers would have to take to obtain such images in low light applications.

SPECIFICATION

Manufacturer: Samsung Techwin
Technology: SSNR
Levels: Low, Middle, High
Cameras: VD-4120A; SHC-721A; SDN 500; SOC 4120A

For further information, please circle PSI Enquiry No 122, or alternatively visit www.securityweb.co.uk and use the on-line response form.

PSI RATINGS

Functionality
 Performance

Installer Friendliness
 Video Quality

