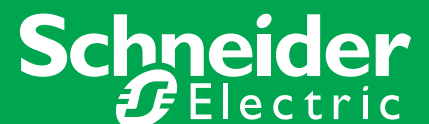


Sarix with SureVision – Delivering the Best Image Quality in Difficult Wide Dynamic Range Scenes

November 2011

Make the most of your energy



Sarix with SureVision – Delivering the Best Image Quality in Difficult Wide Dynamic Range Scenes

“That’s not what that scene looks like!”

Sound familiar? Traditionally, security cameras have struggled to produce images that look the way the human eye perceives scenes, especially in scenes where there is a wide variation of light intensity. Detail in highlights and lowlights that the human eye easily picks up are lost due to a lack of dynamic range in cameras. The problem is so widespread with security cameras that it has become common to place cameras not for best security coverage, but to minimize the glare from the brighter areas of scenes.

This problem arises due to limitations within electronic sensors. Each pixel on a sensor can only absorb so much light before the pixel is full, creating a blown out portion of an image. Traditional cameras can only shorten the amount of time the pixel is allowed to collect light. However, these shorter exposures have the drawback of reducing the ability to see in darker portions of the same scene. The human eye has this same limitation, but is able to see in both dark and bright areas with ease by essentially taking multiple exposures. A combination of the more sensitive rods, less sensitive cones, and pupil action produce this effect.

With the introduction of SureVision, images produced by Pelco cameras more closely match those from the human eye in both technique and performance. Multiple exposures are combined in a unique way to produce single frames with industry best levels of dynamic range and low-light performance – just like the human eye.



A typical lobby scene with nonWDR camera and SureVision (on the bottom), shows the importance of WDR in real world situations



Measuring WDR

To truly understand how SureVision sets the bar in wide dynamic range performance, it is necessary to understand what exactly dynamic range is and how to quantify it correctly. Simply put, dynamic range in an image is the ratio between the brightest and darkest, correctly resolved, portions of an image. This ratio is usually expressed on a logarithmic scale as decibels, or dB, but can also be expressed as a linear ratio. For example, when 120dB is specified on a camera, this corresponds to a 1,000,000 to 1 linear ratio between the brightest and darkest portions of the image.

Unfortunately, without a standardized definition of dynamic range used within the security industry, it is difficult to compare camera specifications. Some manufacturers list theoretical limits impossible in the real world, others use unrealistic measurement techniques, others still simply treat levels like

120dB as a label of “wide dynamic range” performance whether or not this performance is actually attained. As a result, it is necessary to compare real world performance of these cameras to truly see how they perform.

In the lab, one way to assess WDR performance is by looking at how many different shaded segments of a Stouffer chart a camera can resolve. For example, on the chart below that has a range of 90dB, a competing camera that claims 120dB of dynamic range cannot resolve the full extent of the 90dB chart. The Sarix with SureVision camera delivers at least the full range of this chart.



Test scene with over 90dB of dynamic range – SureVision (on the bottom) demonstrates far more dynamic range in this test scene.



It's All in the Image Processing

It's not enough to generate images off of a sensor that has wide dynamic range, it is equally important to have excellence in the image processing done within the camera. Most common compressed video formats, such as H.264 and JPEG, have only 256 levels of brightness for a maximum dynamic range of only 48dB! The challenge of WDR cameras becomes representing the detail of 1,000,000 to 1 dynamic ranges within this 256 level constraint, while continuing to make images look as natural as possible.

SureVision technology utilizes a proprietary and custom reprogrammable image processing system to generate natural looking images that preserve more detail and dynamic range than any other camera on the market. Patent pending techniques and algorithms are the basis for this unique camera architecture, providing more usable video in more scenes than other cameras.

The Importance of WDR and Low Light

Another area where dynamic range is particularly important, yet frequently ignored, is in low light scenes. A particularly challenging, if common example, is a night-time traffic scene, where it is challenging to see detail in the dark areas next to bright headlights. Many customers seek better low-light performance without realizing that what they really seek isn't a more sensitive camera with a lower light sensitivity (lux value) specification, but a camera with the ability to resolve wide dynamic range scenes in low light.

However, most manufacturers do not focus on camera performance in these low light wide dynamic range scenes. Therefore, their cameras do not perform well in low light while in wide dynamic range mode, rendering the camera nearly useless in these common scenes. Even when in wide dynamic range mode, blooming of bright objects causes loss of critical details in these situations.

Thanks to Anti-Bloom technology and proprietary image processing, SureVision produces clear, usable images in extreme low light without ever leaving wide dynamic range mode. No other competitor camera provides this simultaneous combination of performance.

By focusing on delivering usable, natural video in all situations, Pelco has developed a camera with unprecedented applicability in a broad range of challenging scenes. The simplicity with which we present this powerful capability, makes it an easy choice for demanding security applications.



Lower amounts of bloom allow resolution of details around lights better with SureVision (on the bottom).



Schneider Electric

One High Street
North Andover, MA 01845 USA
Phone: +1 978 975 9600
Fax: +1 978 975 9674
<http://www.schneider-electric.com>

