

Illumination For The Video Security Distributor



Content

Content	2
Introduction	3
Illumination For The Distributor	3
Table 1 – Recommended Distributor Stocking	4
Table 2 – Recommended Minimum Stocking Using Hybrids.....	4
Accessories For Product Extension	5
Summary.....	5
About NuOptic	5

Introduction

Video security technology never stops advancing. Video security cameras continue to improve in areas of resolution, low light performance, image quality, analytics, and many others. Advancements in one area are often detrimental to other areas. An important and real-world example of this is the increased resolution found in cameras offered by most video security manufacturers during the last few years.

Advancements in network camera technology, imager technology, processing power, memory, and storage are enabling manufacturers to constantly increase the resolution of video security cameras into the multi-megapixel range. Today, most video security camera manufacturers, including Axis, Avigilon, Arecont Vision, Pelco, and Bosch have cameras promoting 1080P (1920 x 1080) resolution – equivalent to 2 Megapixels (MP). A few, such as Avigilon, boast cameras with as much as 29 Megapixels.

In order to keep costs reasonable, camera designers need to use CMOS imagers whose physical size is as small as is practical. Increasing the imager's resolution while keeping it small means smaller pixels. Smaller pixels mean less light gathering area per pixel, resulting in lower signal to noise ratio for each pixel, which ultimately negatively impacts the low-light performance of the camera. This low light degradation not only affects image quality, in the form of a noisier image, but also has serious impacts to the camera's ability to perform analytics, as well as potentially large increase in storage requirements.

One way to overcome the problem created by this trend is with the use of supplemental illumination. This can take the form of infrared (IR), white light, or even a hybrid that combines both IR and white light into a single unit. For more on the basics of illumination see NuOptic white paper *Infrared and White Light Illumination*.

Illumination For The Distributor

Traditional illumination products have always been very difficult for most distributors to carry. Illuminators are typically available in several different power levels, 3 different wavelengths (850nm, 940nm, and visible white light), and a variety of fixed angles of coverage. The illumination angles found most often in the industry are: 10°, 30°, 60°, 90°, and 120°. Each angle of coverage produces a different illumination spot size and intensity (See NuOptic white paper on distances for more information). If one considers the number of different power levels, wavelengths, and angles of coverage available, along with knowledge that each installation will have a different illumination requirement dependent on camera location and lens used, it is clear that an impossibly large number of illumination products must be carried and stocked in order to satisfy a general population of system integrators.

The NuOptic Varifocal Illumination System (VIS) solves this problem. NuOptic VIS is based on an advanced optical design in which the illumination coverage angle is completely variable and can be adjusted directly on the unit. This angle can be adjusted from 7° to 90° for the infrared unit, and from 6° to 70° for the white light unit. Additionally, the recently announced True Hybrid illuminator combines both IR and white light into a single unit where both wavelengths can be adjusted through the ranges described above.

940nm illumination is used less frequently than 850nm illumination due to the fact that cameras are not as sensitive to 940nm as they are to 850nm. However, some customers need the 100% covertness provided by 940nm illumination. (For more information on the differences between IR wavelengths, see NuOptic white paper *Infrared and White Light illumination*). 940nm illumination has been even more problematic to stock due to the fact that its demand is less than that of 850nm products. However, since the NuOptic VIS illuminators cover such

Illumination For The Video Security Distributor

a wide range in a single unit, stocking 940nm illuminators is now a possibility and practical for some distributors. NuOptic recommends stocking the 850nm and white-light products and ordering 940nm products on an as-needed basis. NuOptic keeps an inventory of all products and can fulfill 940nm orders in a timely manner.

So now for the first time, distributors can consider stocking just 4 models of illumination and know that they have the bulk of the illumination market covered. The recommended models to stock are shown in the table below.

Table 1 – Recommended Distributor Stocking

Model Number	Wavelength	Power Level	Angle	Distance
VIS-1040-S850	850nm	40 Watts	7° to 90°	202 m / 663 ft.
VIS-1040-SCW	Cool White	40 Watts	6° to 70°	150 m / 488 ft.
VIS-1080-S850	850nm	80 Watts	7° to 90°	285 m / 935 ft.
VIS-1080-SCW	Cool White	80 Watts	6° to 70°	210 m / 689 ft.

With the recent release of the True Hybrid unit the total number of stocked units can be reduced even further, since a single hybrid contains both IR wavelengths and white-light wavelengths in a single unit. This does come at a cost premium, as the hybrid unit is more expensive than a single IR or single white light unit. However, the reduced inventory and flexibility can make this an attractive choice for some distributors.

The True Hybrid illuminator provides some additional benefits as well. All VIS products provide a digital input and a digital output pin. Combining the two light sources into a single unit, along with using the input/output pin of the product, means that a True Hybrid can be connected to a video security camera or motion detector that will trigger the illuminator into a mode best described as “alarm wavelength.” An example would be the VIS True Hybrid running in invisible IR mode until a motion, such as passive IR, or camera, sends an alarm to the illuminator via the electrical I/O pin. The VIS unit will then go to white-light mode allowing for color mode operation of the camera and triggering the human visible white light mode alerting anyone in the area that they are under surveillance as well as providing safety lighting.

If a distributor were interesting in truly minimizing the inventory required to satisfy the majority of the marketplace, only two units would need to be stocked, as outlined in the table below.

Table 2 – Recommended Minimum Stocking Using Hybrids

Model Number	Wavelength	Power Level	Angle	Distance
VIS-1040-SHY	850nm	40 Watts	7° to 90°	202 m / 663 ft.
	Cool White		6° to 70°	150 m / 488 ft.
VIS-10480-SHY	850 nm	80 Watts	7° to 90°	285 m / 935 ft.
	Cool White		6° to 70°	210 m / 689 ft.

Accessories For Product Extension

NuOptic provides variety of accessories for the VIS Technology, including mounting brackets, power supplies, junction boxes, and a gang mount. While the NuOptic VIS products work with standard 24V AC (as well as up to 36V DC), NuOptic provides power supplies designed for long life and extended operation.

The NuOptic Gang Mount (VIS-1000-GM) is a very versatile accessory that enables multiple illuminators to be combined and function in a multi-unit configuration. Control wires linking multiple devices allow the illuminators to function as a single unit. The Junction Box (VIS-1000-JB) has been specifically designed to simplify the task of wiring multiple units to power supplies and control wires; this accessory is a natural companion to the Gang Mount. Using the Gang Mount, integrators can configure the unit to cover more area by pointing the illuminators in different directions, or they can choose to increase the light or distance by pointing the illuminators in the same direction. Any number of illuminators can be ganged together.

This Gang Mount and Junction Box further improve the illuminator system flexibility, ensuring that the distributor has the right product on hand for the system integrator and end-user.

Summary

Cameras continue to increase in resolution and add features such as analytics for additional value in the marketplace. This resolution trend significantly impacts the low light performance of security cameras and subsequently the operation of analytics. Supplemental illumination, in the form of IR light (for either covertness or to intentionally preserve darkness) or white-light for overtness, alarming, or color operation, can significantly improve the performance of security systems. Stocking illumination products, from a distribution point of view, has been very problematic due to the sheer number of models required to cover the variety of installation requirements. The NuOptic VIS technology reduces the number of unique models stocked by a distributor to just a few, while covering most of the marketplace needs.

About NuOptic

NuOptic is an innovative leader in illumination products and technologies for the video security market and beyond. Having introduced state-of-the-art varifocal and motorized zooming illuminators, NuOptic is focused on the continual advancement of illumination technologies.

NuOptic VISTM features a user-adjustable beam angle, and supports multiple protocols including Pelco-D for remote configuration and monitoring. Designed for flexibility and long life, NuOptic VISTM, reduces SKU management, installation time, and costs while improving image quality and overall camera performance. Headquartered in Indianapolis, Indiana, with R&D operations in Fort Collins, Colorado, NuOptic is committed to long-lasting partnerships, built through outstanding customer service, great products, leading technology, and knowledgeable staff.