

Night Vision Photography—Capturing Critical Images in Low-Light

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Introduction

In an article titled “Nighttime Accident and Crime Scene Photography—Painting with Light” in the June 2005 issue of **Law Enforcement Technology**, I stressed the importance of being prepared for the job. “...*If sometime in the future you may be called upon to take photographs of a nighttime accident or crime scene pictures, now is the time to prepare yourself for the task by realizing the special considerations which will be encountered.*” I have believed in that theory for many years, and I embrace it even more closely as I near retirement. The new technologies available to the law enforcement community have forced us to be prepared. Mastering the operation of mobile data forensic light sources the most dedicated computers, PDA’s, and can try the patience of even professional. Nighttime photography can truly be a tricky task. Low light conditions, traffic, massive (large) crime scenes, weather, and movement within the scene are issues to consider as we go about the task of recording a scene with a camera; especially after nightfall. One of the most important factors that we must bear in mind is that we never know when we will be called upon to photograph the nighttime scene. That fact alone should convince each and every one of us to be prepared.

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Another type of nighttime photography also demands preparedness, yet the method of photography is altogether different. I’m speaking of nighttime photography of the surveillance nature. In nearly all investigations involving surveillance, it is critically important that we avoid detection by the suspect(s). Even in daylight, Law Enforcement Officers experience difficulty concealing themselves from the suspect activity and bystanders, while trying hard to blend into the surrounding environment. Concealment during nighttime surveillance is often easier than during the day, but something very important is missing, and that is light (illumination of the scene/suspect.)

It will be the purpose of this article to discuss many of the factors confronting the Law Enforcement Officer during nighttime surveillance photography, while evaluating the AstroScope Night Vision module from Electrophysics Corporation (Fairfield, NJ).

Equipment



The AstroScope model 9350NIKS-3PRO is five inches in length, and weighs less than one and one-half pounds. The Image-Intensifier (heart of the system) is a Gen III component with 64 line-pair/mm resolution... the same unit used in the US Military AN/PVS-14 Night Vision pocketscope/monocular. I have conducted many nighttime surveillance exercises in my career, and one of the things I remember most of each (especially when preparing for the next assignment) is reminding myself how much equipment I have to carry around, especially when the scene is mobile. As I prepared to use the AstroScope for the first time, I was impressed by the unit's compact size and lightweight feel. The CIU (Central Intensifier Unit) within the AstroScope amplifies existing light (moonlight, street lights, traffic signals, etc.) to a degree that

produces sharp, high-resolution photographs. Taking pictures with the aid of an AstroScope is very straightforward and minimal additional instruction is necessary. Unlike Painting with Light, photographers capture Night Vision surveillance images without a flash. As suggested, the nighttime surveillance photographer must rely on existing ambient light to illuminate the scene, and the AstroScope allows the photographer to do just that.

The night vision module that I had was designed specifically for use on a Nikon-type camera body with Nikon lenses. (The manufacturer offers different night vision modules and adapters that fit other cameras and lenses like Canon EOS and XL). Once attached to the camera, I was free to use any Nikon lens in my camera kit, from a 28mm wide-angle lens to 50mm normal lens, to a 300mm Tamron telephoto lens with 2x teleconverter. I was especially pleased that the compact size of the AstroScope allowed me to conduct close-range surveillance photography after dark or in an extreme low-light environment while using a normal lens. Little did I know that the very first time I used the AstroScope would involve a genuine investigation, with very little notice (preparation time). On the night of the culmination of this particular investigation, I used a Nikon D50 digital SLR camera with the AstroScope and a Tamron lens attached. This entire camera setup with lens hood had a combined length of twenty-two inches and weighed eight pounds. Portability is something the Law Enforcement Officer has to think about and deal with when photographing the surveillance scene. There have been many occasions when I have had to sit in a car for a considerable amount of time, and without notice, exit my vehicle while continuing to photograph the scene or activity. Coupled with the fact that most nighttime surveillance is aided with a tripod or monopod, (mine weighs in at four pounds and fully collapsed is twenty-six inches long) lightweight portability is a feature I certainly appreciate.

As with nearly all night vision equipment, the AstroScope photographs have a green color to them. I prefer to convert nearly all of my nighttime surveillance photography to black and white because I can use software to digitally enhance my B&W photographs much more easily than I can with color. For this purpose you should know that some cameras, like the D1x, have a B&W shooting mode. The camera that I use allows me to take high resolution photos and capture

them on a one-gig memory card that allows me to take many, many photos without even thinking of reloading or worrying about having a fresh memory card on hand.

Even though I have mentioned the use of a tripod, you should understand that you can capture most photographs with the AstroScope night vision equipment using a relatively fast shutter speed, for example 1/60th second, which is normally the fastest shutter speed recommended for night vision photography. Shutter speeds this fast and faster allow the photographer to take photos while hand-holding the camera and without the visible shake associated with slower shutter speeds. With the Tamron 300 and 2x teleconverter, I choose to utilize a monopod, as the size and weight of the equipment requires a steady support, even at fast shutter speeds.

The Investigation

As a member of the Internet Crimes Against Children Task Force of Iowa, I have been involved in investigations involving Online exploitation of children. These investigations often find me Online in chat rooms, posing as minor (under age 16) boys and girls. A recent investigation involved a 34-year old man soliciting my assumed identity Online for sex. He went on to arrange a meeting with me in a neighborhood park, where he was going to meet me, drive me to his residence for a sexual encounter and return me to the park several hours later. I won't get in to the particulars of preparing documents, (warrants, etc.) and manpower assistance, as we prepared to "take down" this suspect. Rather, I will try to outline for you the factors that I considered as I prepared to record the encounter with photography.

Again, be aware that the only nighttime surveillance scene illumination available will be existing ambient light, intensified with the night vision module. I had control of the meeting site from the beginning, so I chose a location that I was familiar with. I selected a park that is deserted after dark. Pedestrian traffic at night is nearly non-existent, and vehicular traffic is sporadic. I bring these factors up, as the safety of Officers and the surrounding neighborhood is very important. Three lights illuminate the immediate area surrounding the park shelter which I chose for the meeting site. One of the lights is well into the park and the shelter from the rear. Another is at the entrance to the parking lot, and the third is at on the street nearly 200 feet away from the parking lot light.

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Very little light was available at the scene and I knew that conventional photography would be out of the question, so I chose to use the night vision module. I had just removed it from the delivery box five days earlier!

A female Officer was assigned to walk into the park just prior to the meeting time. She would take up a position in the shelter, and wait for the suspect to approach. This Officer was armed, and would be able to communicate with others on the scene via her portable radio. (The cool weather on this evening allowed her to carry her weapon and radio under a jacket, undetected.) We decided ahead of time that if the suspect showed, he would be confronted by Officers prior to being allowed to approach and otherwise come into contact with our Officer, who he believed would be a 15-year old girl.

As he said he would, the suspect approached the park area driving the vehicle that he had described to me Online. He first drove by the park, turned around two blocks down the street, drove back and then pulled into the park. He was immediately confronted by Officers and

arrested at the scene. The whole incident took less than three minutes; from the time he first came into view to arrest time. During that time I was able to take many photographs, some of which are shown here.

Again, I chose this park because I was familiar with the area. I also chose it because there was a stand of trees running along the west edge of the park, which I knew would offer better “cover” and “concealment.” I operated covertly without sacrificing my view of the scene. Even with the camera, night vision module and lens mounted on my monopod, I was able to freely (and quickly) move up and down the stand of trees, photographing the suspect’s first approach, his entry into the park and the “take-down.”



In this photo, our female Officer is walking into the park. The photo was taken from a distance of approximately 500 feet. This photo is interesting because the Officer had noticed a car pulling into a drive, which is just out of the picture to the left, just before I captured the image. Believing that this vehicle may be the suspect (entering the park from a direction other than what was anticipated) she drew her weapon and carried it next to her right leg as she continued walking. The weapon is visible on extreme enlargement of the photo. I was truly impressed with the image detail possible using the night vision module.



This photo shows our Officer sitting under the shelter (as planned and told to the suspect.) The Officer is pictured in the upper-left corner of the photo. I was pleased to see that the Officer is recognizable in this photo, even though she is under the shelter overhang, albeit illuminated by backlighting of a park light. The suspect vehicle has pulled in to the parking lot and the suspect was told that the girl would walk to his car. One Officer was not in place, so there was an unplanned delay in “taking down” the suspect. Again, according to our plan, we would not allow him to exit his vehicle and approach our Officer.



The suspect is shown sitting in his car waiting for the girl to approach him. I chose this photo for publication because he is not showing his face. At least two photos show him looking out his driver's side window, and he is easily recognizable. I was able to move freely along the stand of trees at the edge of the park. The possibility of this in pre-planning should always be considered, as the suspect and activity may not act as anticipated. This particular scene was extremely dark. The light showing in the background actually cast a shadow into the parking lot, and the other nearest street light was over 200 feet away. Needless to say, I was pleased with this photo.



I captured the photo to the left after we took the suspect into custody. The photograph shows that the car and its plate can be easily identified even though there is no streetlight within 200 feet from the car. It is easily identified as a 2005 Pontiac Grand Prix 4-dr. In many cases, a suspect vehicle under surveillance is allowed to leave the area of the activity. Had I so chosen to do just that, and had I not gotten a license number, I could have taken the photo to a dealer and had the model identified as a GT, enabling me to narrow a search for the vehicle. (The license number is purposely blocked out in this photo.)

Conclusion

Again, preparation is the key word for nighttime surveillance photography. I was pleased that the AstroScope performed for me better than I had anticipated. Its ease of operation and adaptability to camera equipment already in use allowed me to concentrate on other challenging aspects of the incident ("take down") being planned. I congratulate Electrophysics for manufacturing this quality piece of equipment. I would strongly suggest that law enforcement agencies have a product such as the AstroScope in their arsenal of equipment. Veteran Officers know that not all photography is done in daylight conditions with high skies and backlighting. The AstroScope allowed me to be just as comfortable in this nighttime exercise, and on very short notice, as I am in otherwise pristine settings.