

SRI's new DomiNite® digital camera stands to disrupt analog low-light imaging technology

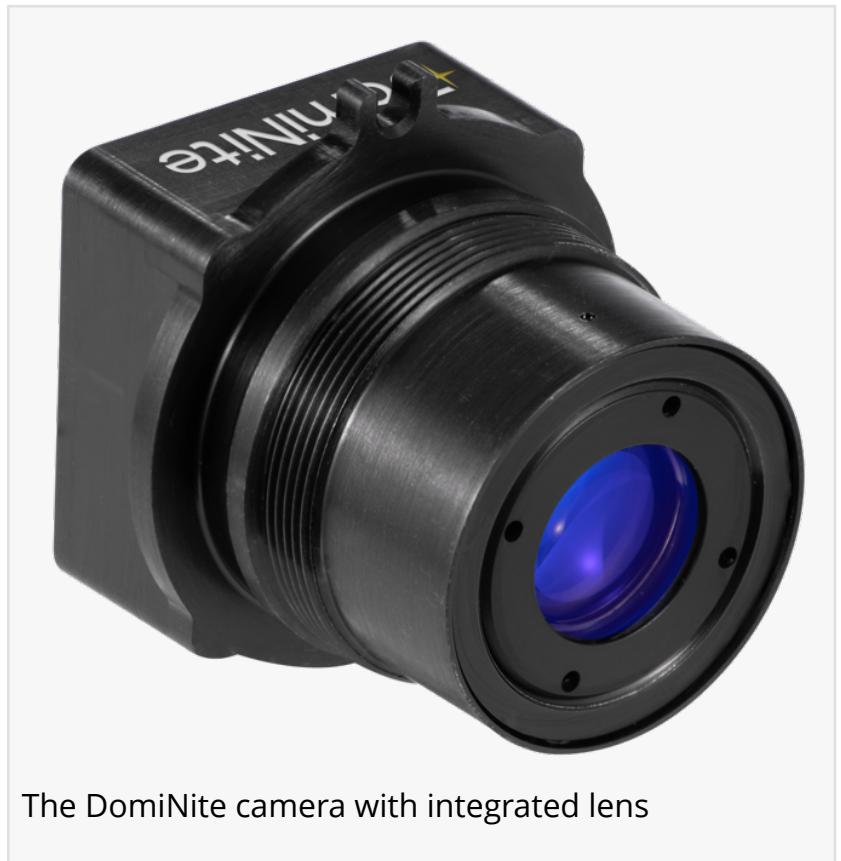
SRI's digital low-light camera, DomiNite, is available for commercial use, set to replace analog technology.

MENLO PARK, CA, CA, UNITED STATES, April 15, 2025 /EINPresswire.com/ -- SRI announced today that its DomiNite camera is available for commercial use. For more than a decade, SRI has been working with the U.S. Department of Defense to build digital alternatives to traditional analog night vision technology.

The result is DomiNite, an extremely light and small camera compared to analog night vision devices that rely on intensifier tubes. The core DomiNite product easily integrates into existing platforms, weighs less than half an ounce, and comes with an integrated lens consuming a volume of a little more than one cubic inch. Ideal for head-worn applications, DomiNite provides high dynamic range — crucial for diverse nighttime conditions. Unlike image intensifiers, it can simultaneously provide a clear image of bright and low-light areas and is not overwhelmed or damaged by sudden light bursts.

Digital low-light camera sensors have larger pixels and lower noise than typical daytime cameras. When light is sparse, every photon matters. SRI's approach to capturing those photons is rooted in a patented "Quad Pixel" design. "This is the heart of the DomiNite system," says Colin Earle, director at SRI's Center for Advanced Imaging. "Thanks to our Quad Pixel technology, we believe that DomiNite is the most sensitive digital low-light imager that has been deployed in the field."

The Quad Pixel design allows for two different modes. High-resolution mode operates well down to about "quarter-moon" conditions. When it gets even darker, for example, in moonless or cloudy conditions, the high-sensitivity mode automatically kicks in, providing the signal boost necessary for effective vision.



The DomiNite camera with integrated lens

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Lots of people claim to have digital night vision cameras, and some of them do a pretty good job. But they just don't have the low-light sensitivity that we have.”

Colin Earle, director at SRI's Center for Advanced Imaging

DomiNite aims to improve situational awareness for dismounted soldiers, enhance driver vision in ground vehicles, and provide superior intelligence, surveillance, and reconnaissance (ISR) capabilities for UAVs. In a commercial context, DomiNite is designed to bring new capabilities in areas like law enforcement, security, autonomous navigation, and outdoor recreation.

Invented in the late 1940s, analog image intensifier tubes have remained the gold standard for night vision. Today, thanks to image intensifier tubes, American soldiers have

been operating safely and effectively in the darkest night-time conditions. Its challenges, however, have been that these cameras are based on inherently analog technology and can't readily plug into emerging AI and object recognition technologies or sync with digital thermal imagers. Today's best image intensifiers are also hard to make, fragile, and expensive. Additionally, analog imagers perform exceptionally well in low-light conditions but not in brighter conditions. If exposed to a sudden burst of light, they are easily blinded and can be damaged.

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The SRI team will continue to decrease DomiNite's size, weight, and power (SWaP), while also providing different configurations with a range of opto-mechanical and digital interfaces (USB, PoE, Camera Link). They have built reference designs demonstrating integration into binoculars and scopes, which will enable defense contractors and commercial customers to quickly embed the camera into larger platforms.

Continuing the innovation, the team is working with a startup called Deepnight to process video through an AI signal-processing algorithm. With the algorithm, an image taken in dark “starlight” conditions becomes as clear as a non-processed image taken in ten-times-brighter “quarter-moon” conditions. To extend the potential applications of digital low-light imaging, SRI is pursuing multiple paths that will enhance DomiNite. To learn more, visit DomiNite.sri.com.

About SRI

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