

DESIGN BRIEF

Image-Based Chemical Threat Detection System

USB 3.0 video interface reduces computing costs and cabling complexity of portable military imaging system for chemical detection

Pleora's **iPORT™ CL-U3 External Frame Grabbers** help system designers reduce the costs and complexity of portable military imaging systems by converting existing Camera Link cameras into USB3 Vision® cameras.

The chemical imaging detection system uses a Camera Link passive infrared detection camera to automatically search the region for chemical agent vapor clouds. Using sophisticated pattern recognition algorithms, the system can detect and classify chemical agents up to two kilometers away, allowing personnel to avoid contaminated areas, don protective equipment, and alert nearby troops. The threat detection system can be mounted on ground-based vehicles and naval vessels as part of a mobile local situational awareness system, and deployed in a fixed site to monitor a perimeter.

Pleora's USB3 Vision external frame grabber was selected during a retrofit upgrade of the military imaging system. Previously, transmitting video from the Camera Link camera required bulky, specialized cabling and a PCIe frame grabber to capture images at the computer, resulting in more complex systems, higher costs, and limited computing platform support.

With the iPORT CL-U3, the image feed from the Camera Link camera is converted into USB3 Vision-compliant video. The uncompressed high-bandwidth video is transmitted with low, consistent latency over a USB 3.0 cable directly to a compact, lower-cost, ruggedized single-board computer used for processing and analysis. Data is sent to an operator display unit and can then be shared with a command center, nearby troops, and onboard avionics systems used for battlespace observation, surveillance, and awareness.

Power, control signals, and data are transmitted over the single, thinner, lighter and more flexible cabling; reducing costs and complexity while enabling 360-degree coverage for the rotating camera system.

