



WAVcam Executive Summary

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WAVcam is an innovative IP video system designed for persistent surveillance applications demanding constant high resolution wide area coverage and target detection using visible light or mid-wave infrared sensors. Truly effective visual domain awareness demands both wide area persistent coverage and high resolution imagery. Traditional video surveillance sensor systems employing the most capable zoom lens can provide images that are either wide angle or high resolution. However, traditional systems cannot deliver both capabilities simultaneously unless a large number - approximately 20 to 60 cameras for a 90° wide view - are deployed in arrays. The extremely high cost of such large arrays of cameras and the infrastructure to support them is typically cost prohibitive.

Employing a single sensor in a system with advanced beam steering, image processing and data handling, ISA's WAVcam wide-area video system is an affordable solution that simultaneously achieves ultra-high resolution and a 90° horizontal field of view. WAVcam provides effective change detection, an intuitive user interface, flexible data storage and a standard-based interface for multi-sensor domain awareness systems.

Because the WFOV remains fixed, image registration is automatic, enabling efficient automated motion detection and tracking. The WAVcam system includes hardware and software to provide image processing, stabilization, motion detection and flexible data storage. Using an intuitive display technique, WAVcam enables operators to quickly recognize the track "signature" of various target types and provides a graphic representation of motion direction and velocity. WAVcam's display software presents the entire panoramic FOV to the user via high resolution panel or projector displays with potential threats/targets highlighted, delivering persistent situational awareness over the entire area. Unlimited pop-up windows, selected with a single click on the target any area within the FOV, provide full resolution and digital zoom during both real-time display and replay from the system's digital storage archive. Because the video is accessed directly and immediately from fast data storage, multiple users - systems or operators - are each able to independently "pan, tilt and zoom" through the video data without impacting each other.

Wide area surveillance frequently includes difficult environmental challenges for any exposed video sensor subsystem. The sensors must operate correctly and reliably in extremes of weather, humidity, temperature, sun and dust. WAVcam's visible and mid-wave cameras and the sensors' associated optical and electronics are contained in a custom-developed rugged housing that meets those challenges. The WAVcam sensor housing is solar shielded, temperature controlled, water/air-tight and pressurized with dry nitrogen to ensure reliable operations in extreme conditions.

WAVcam's combination of optical resolution, day/night operations, highly accurate horizontal target positioning and 90° wide to-the-horizon coverage provide the user with most of the features and capabilities of a combined EO/IR and radar sensor suite and adds a superior, visually-based domain awareness capability.

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