Challenges of border and coastal security in low visibility

With global HLS risks on the rise, there is a need for a true round-the-clock, all-weather, long-distance surveillance system that can provide full 24/7 coverage of land and sea borders in all possible circumstances. Harsh weather conditions such as thick fog, humidity, dust, or snow impose a challenge for current surveillance solutions, which need to scan wide areas and be able to detect and identify threats in real time. These and other atmospheric conditions will highly affect the range of conventional thermal sensors as water and humidity shield off infrared radiation, causing the infrared signal to be diminished or lost. Border and coastal guards are nevertheless still required to assess whether the intruders are illegal immigrants or refugees, smugglers, terrorists or enemy forces.

The fast shifting market demands call for a surveillance system that is unlimited at times of adverse weather and zero light. Thermal vision systems with fused multi-spectral (MWIR & SWIR) capabilities are unaffected by metrological effects and able to provide sharp contrast images during the day, at night, or in extremely low visibility conditions; thus ensuring land and sea border guards the easy identification of people, vehicles, animals, or any other object that may present a threat.

Opgal has extensive experience delivering 24/7 high-performing surveillance solutions for the effective protection of land and coastal borders.

Its thermal cameras and systems are used worldwide on land and sea borders, many of which face ongoing terrorist intrusions and smuggling. These cameras and systems carry out wide area scene surveillance as well as close-up threat assessment, making them extremely effective at detecting, identifying, and preventing illegal incursions.

Multi-spectral thermal vision systems for land and coastal border surveillance

Ideal for both the detection and assessment of security threats at long range, Opgal's high-resolution short-wave infrared (SWIR) and multi-spectral (MWIR & SWIR) cameras are an excellent option for border surveillance. The Sii FG multi-spectral vision system uses proprietary image processing algorithms that fuses the two wavelengths in a single sensor. The innovative developments in the thermal detector and advanced image processing afford highly improved optics to deliver incredible range and increased situational awareness in extreme bad weather such as thick fog, smog, heavy rain, high humidity, and snow. Its ability to detect and identify human-sized targets at extreme long ranges makes it optimal for the requirements of land and sea border protection.

Sii FG

Opgal Sii FG's high-resolution and extreme sensitivity allows three times better visibility than the naked eye, enabling detailed human detection and identification even in harsh weather conditions. Its ability to image day, night, or in extreme weather eliminates the costly need for multiple cameras covering the same scene.

The Sii FG multi-spectral vision system offers extreme long-range detection and vision capabilities of up to 10 kilometers. The proprietary image-processing algorithm combined with a highly sensitive IR sensor and very high dynamic range, allow the system to deliver clear images otherwise undetectable to the naked eye.

Summary

Opgal has installed hundreds of surveillance systems on land and sea borders all over the world. In view of the market demand for a surveillance system that could penetrate thick fog and other harsh environmental conditions, Opgal developed the Sii FG multi-spectral thermal vision system. Its unique design, which combines thermal and short-wave images, offers target detection, facial recognition, and a first-in-kind image quality necessary for a variety of applications that require surveillance in harsh weather conditions.

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