

VIGILX DISTRIBUTED APERTURE ENHANCED VISION SYSTEM

The VIGILX Distributed Aperture Enhanced Vision System (DAEVS) provides improved night and poor weather situational awareness to aide the pilotage of aircraft through the fusion of distributed aperture infrared or low-light level visible band electro-optical sensor data and terrain databases.

SELEX Galileo has been a leading supplier of airborne electro-optical and night vision systems for over thirty years. VIGILX employs the latest technology to provide a panoramic multi-user situational awareness solution.

Based on an open architecture system design, VIGILX employs fusion of a distributed aperture array of electro-optical sensors with navigation and terrain data to provide the pilot and other aircrew with a visual picture of the environment within which they are operating.

VIGILX supports any type of framing image format electro-optical sensor which conforms to one of a range of video standards. These may be visible or infrared sensors and may be co-located or distributed about the airframe. The standard VIGILX product employs an array of uncooled infrared sensors.

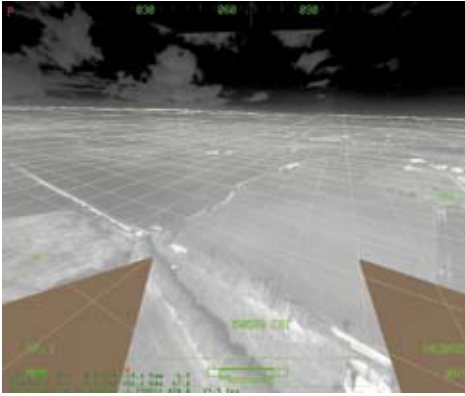
The visual panoramic situational picture may be displayed on either a conventional Head Down tactical Display (HDD) or Helmet Mounted Display (HMD) for panoramic situational awareness. Alternatively a centre line patch may be displayed via a suitable Head Up Display (HUD).

When integrated with the aircraft's navigation system the electro-optical sensor data may be augmented by a terrain overlay, as either a wire frame grid or a fully rendered synthetic terrain image.

VIGILX DAEVS SYSTEM FEATURES:

- Panoramic distributed aperture uncooled infrared and/or low-light level TV sensor array providing 24/7 vision capability
- Geometric correction, alignment and dynamic contrast matching of infrared and visible band sensors forming a seamless panoramic image optimally registered with the external view
- Wire frame terrain overlay for improved contextual and terrain profile situational awareness in poor visibility
- Synthetic vision rendered terrain display for improved contextual and situational awareness in poor or zero visibility.

VIGILX Distributed Aperture Enhanced Vision System



Panoramic image with geometric correction and gain matching, with or without DTED derived Terrain Overlay

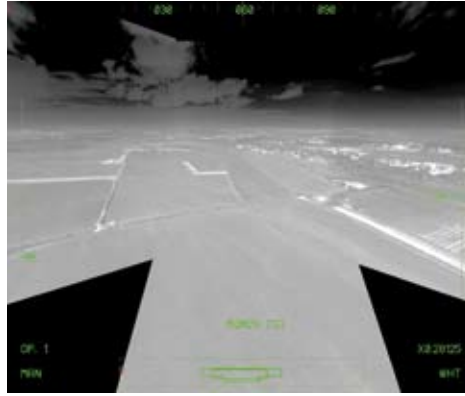


Image patch extracted for:

- Head-Up Display - aligned with aircraft datum
- Head Down Display - manually or flight vector steered
- Helmet Mounted Display - locked to Head Position Tracker

All with optional Flight Symbolry and/or Terrain Overlay.

TECHNICAL SUMMARY

SYSTEM OVERVIEW

VIGILX's advanced low latency image processing hosted on SELEX Galileo's SigMA-B open architecture, provides fusion of the distributed aperture imagers optimised for display on either HDDs or HUDs. A Helmet-Mounted Display (HMD) output can be provided as a customer option.

Graphical displays of aircraft position, speed and altitude, provided from the aircraft data interface, can be overlaid onto the HDD, HMD or HUD.

VIGILX may be configured for helicopters or fixed wing transport aircraft.

Existing cockpit HDD or HUD multi-function display systems, with a suitable format for displaying the VIGILX images, can be utilised or the compact flat panel LCD displays provided.

SENSOR, DATA AND DISPLAY PROCESSING

The standard distributed aperture sensor configuration comprises:

- 4 off 640 x 480 uncooled 8-12µm infrared cameras.

Optional sensor configurations may be provided as customer options and include:

- Addition of alternative infrared sensor including higher performance cooled sensors
- Addition of 768 x 512 low-light level 450-1100nm visible band cameras for dual band capability with image fusion.
- Alternatively the electro-optical sensor may be distributed about the aircraft rather than as a clustered sensor-head group.

Optional terrain profile overlay functionality includes:

- Wire frame terrain grid overlay on image
- Synthetic terrain image for contextual and tactical display.

The display output supports a range of video output standards. Optional customer specific interfaces may be provided for HMDs.

VIGILX is fully scalable utilising its module design and components and may be configured for single or multi-user installation on helicopters or fixed wing aircraft.

VIGILX provides a centralised facility for airborne platform electro-optical image data fusion and distribution. Sensor image data from any electro-optical sensor mounted on the aircraft may be fused into the panoramic image space provided that its geometry and pointing vector are known.

Integration of VIGILX with the aircraft navigation system enables Synthetic Vision System (SVS) capability for terrain profile image overlay derived from the embedded Digital Terrain Elevation Database (DTED).

