

IllumiNITE®

Evolutionary Visual Extension of The Eye

General Guidelines to Long Range Imaging:

Defining visibility in bad weather is subjective and inexact; however, demonstrated experience for “Expectations” and “Comparisons” are below:

At sea during the night, recognize...

- Man's head: 1,000m
- Man's head in heavy rain: 500m
- RHIB, RIB, IB: 4,000m
- RHIB, RIB, IB in heavy rain: 2,000m
- Flashing lights

Integrated Electronics

Multi-patented embedded algorithms for system processing:

- High-frequency electronic stabilization
- Easy installation

Hardware & IP-Based Controls

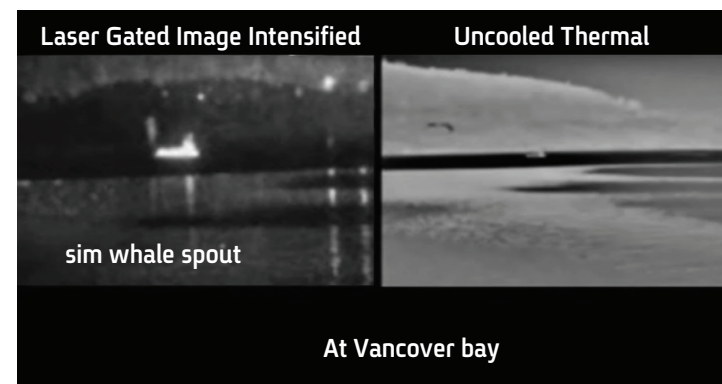
- Ruggedized touch-screen controls
- Glass bridge integrable
- Graphical User Interface

Advanced Embedded Software

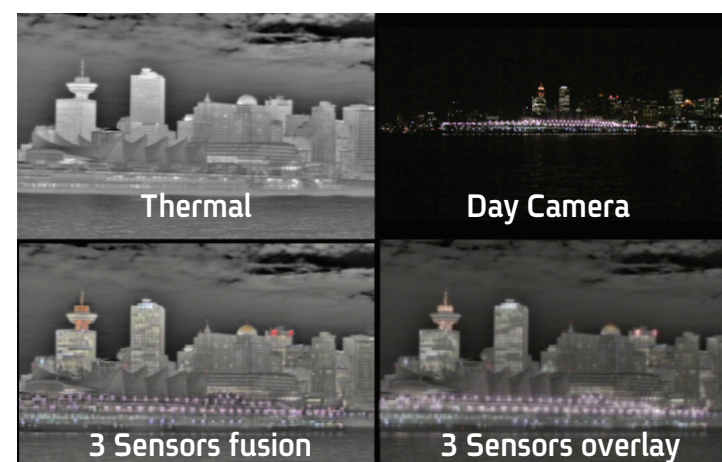
- Weather presets: clear, rain, heavy rain/snow, fog
- 3 operating modes: Observation / Underway / SAR
- Dynamic image mixing: Scalable LGI or Day to Thermal: 0-100%
- Automatic object detection: Audible/visual alarm
- Instant automatic replay
- Automatic/manual shoreline detection
- Object tracking: Definable region of interest (ROI) with red frame inside ROI, green frame outside ROI indicators
- Grey/green scale viewing modes
- Preset positions – Autoscan & Panoramic Image

Environmental

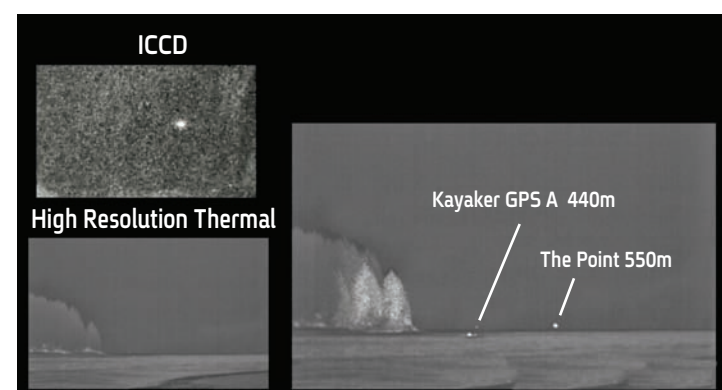
- Designed and tested in harsh sea weather conditions
- Designed to IP67 level



IllumiNITE® sim whale spout detection 800m vs thermal



IllumiNITE® Vancouver bay Fused LGI + Thermal



IllumiNITE® Canadian Coast Guard testing in heavy rain at night



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Evolutionary Visual Extension of The Eye





See what has never been seen before

ILLUMINITE® provides the best image night and day in clear and adverse weather conditions such as rain, heavy rain, snow, smog and fog. A three-sensor actively synchronized system is fused to produce one ILLUMINITE® image of unprecedented detail and clarity.

Applications:

- Aid navigation in all weather day & night avoiding the unseen
- Oil platform security
- Anti piracy – identify, classify and track small fast moving ribs deployed from mother ship
- Search And Rescue SAR – find swimmers or small boats easier in all weather day & night **“More Rescue and less Search”**
- Automatic obstacle detection

Canadian Coast Guard vessels and objects used in the water during the test period



SAR Lifeboat - Point Henry 23m



Coast Guard RHIB 7m



Small buoy - 15 cm dia. Large buoy - 61 cm dia.



Life ring with reflective markers



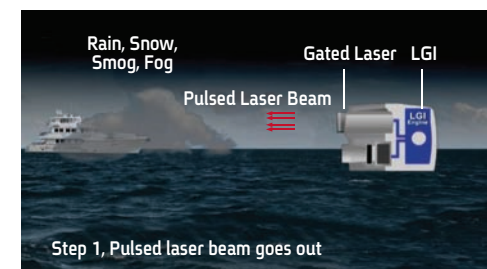
ILLUMINITE® Two people at night in water: 500 m

“This should become law onboard all vessels”

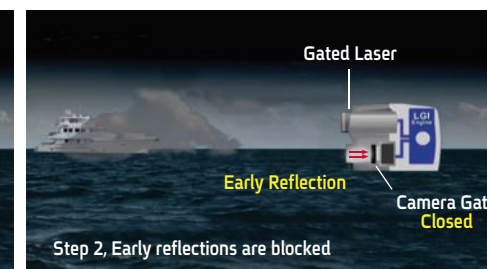
“You have changed the way we think about travel on the water”

Comments by ship Captains following a pitch black night system demonstration

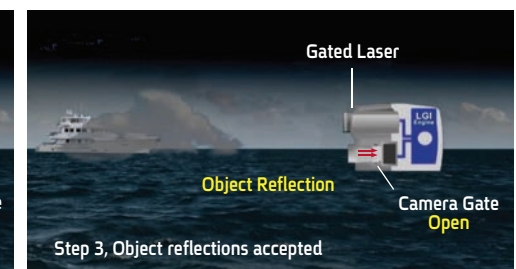
How it works:



Step 1, Pulsed laser beam goes out



Step 2, Early reflections are blocked



Step 3, Object reflections accepted

Key Benefits:

- Bridge Safety & Bridge Budget - reduction in stress with optical image of outside world
- Imaging what radar detects & Imaging and detecting what radar fails to detect
- Reduce Maintenance Budget: avoid ship out of service or dry dock costs due to hitting logs and damaging props, shafts, engine and seals as well as propellers catching crab pot floats, and fishing net floats
- Avoidance of small craft and un-lit craft that do not show up on radar
- Reduce Insurance Premiums for risk reduction efforts and practices in hazard avoidance

Features:

- 3-Sensor System - Image-Intensified Night Vision synced with Infrared Active Laser Gating-High Resolution Thermal Imager - High-Definition Day Camera
- Integrated Electronics - 3-Axis Gyro & Electronic Stabilization - Sealed & Nitrogen purged
- Advanced Software Integration - Automatic Object Detection, tracking and alarm - Dynamic image mixing (scalable % of LGII / Thermal / day) - Instant automatic replay on automatic detection mode, Weather Presets and IP-based system control

3 Sensors, One Image:

- Image-Intensified Night Vision
- Synchronized gate
- High-Resolution Thermal Imager
 - 640x480 pixel resolution
 - 20°/6.8° or 13.8°/4.6° field of view
- Intensified Image Night Vision
 - 1280 X 1024 Sensor Resolution
 - I² tube external or automatic gating
- High Definition Day Camera:
 - 720p or 1080p selectable
 - 55-2.7° optical zoom & 12x digital zoom
 - Matching optical & digital zoom
 - Provides depth of field

Complete Information

- Depth of field
- Color of lights & beacons
- Shoreline details
- Thermal signature
- Fused Images



ILLUMINITE® fishing boat at night: 600m

Images shown were taken from actual raw data video shot of scene with ILLUMINITE®