

IR/UV Line Scanner

Passive remote sensing of marine pollution using the Infrared/Ultraviolet Line Scanner



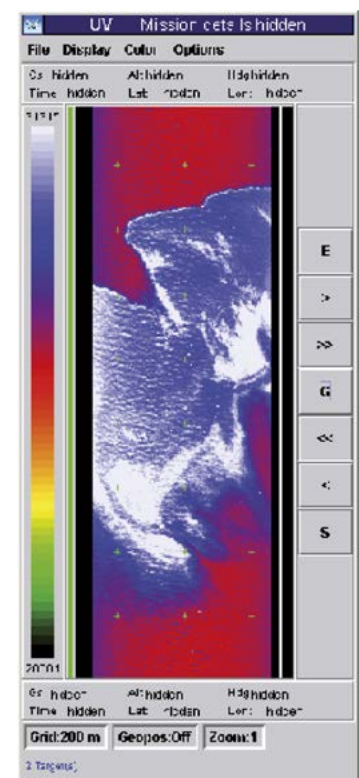
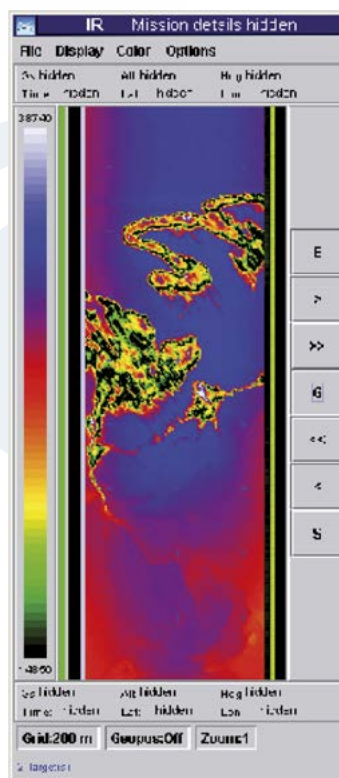
- Detection of highly reflective features on the sea surface such as oil spills and biogenic surface films
- Highly resolved mapping of very thin and thick oil layers on the water surface
- Basic sensor for automatic creation of thematic maps of the oil spill scene (automated scene analysis)
- Imaging remote sensor for thermal mapping applicationse.de

Application

IR/UV line scanners have been established as standard tools in airborne oil spill remote sensing. They are capable of simultaneously mapping the total extent of the oil spill (layer thickness $> 0.01 \mu\text{m}$) as well as areas of intermediate (2 to $70 \mu\text{m}$) and large oil layer thickness ($> 50 \mu\text{m}$).

Product Evolution

OPTIMARE developed a ruggedized, lightweight and modular IR/UV Line Scanner for airborne maritime surveillance. OPTIMARE's IR/UV Line Scanner is characterized by a unique optical design, an excellent maintainability and a broad operating temperature range.



Technical Data

IR/UV Line Scanner

MECHANICAL PROPERTIES	
Dimensions	351.5 mm x 290 mm x 305 mm (IR/UV Scan Head) 485 mm x 420 mm x 338 mm (IR/UV Control Unit incl. mounting tray)
Mass	12.3 kg (IR/UV Scan Head) 17.9 kg (IR/UV Control Unit incl. mounting tray)
Stand-alone/Module	IR/UV Control Unit is connected to a mission Computer

OPTICAL DETECTORS	
Type	Closed-cycle sterling-cooled thermal infrared detector of type HgCdTe Diode-based ultraviolet detector
Number of channels	2
Spectral sensitivity	8 µm ... 12 µm (thermal infrared) 280 nm ... 380 nm (near ultraviolet)

SCANNING SYSTEMS	
Scanning method	Across-track scanning
Scan rate	100 Hz
Line rate	20 Hz
Field of View (FOV)	90 deg
Altitude of operation	Typically 1,000 ft (higher altitude operation possible)

POWER/FUEL SUPPLY	
Current	19 A @ 28 VDC
Voltage	28 VDC (nominal); 20 VDC - 32 VDC

COMMUNICATION/INTERFACE	
Network Connection	Copper or fiber-optic ethernet

OPERATING/STORAGE CONDITIONS	
Ground survival temperature	-55 °C ... +85 °C (IR/UV Scan Head) -55 °C ... +60 °C (IR/UV Control Unit)
Operating temperature	-40 °C ... +70 °C (IR/UV Scan Head) -40 °C ... +55 °C (IR/UV Control Unit)
Altitude/Pressure	41,000 ft (storage); 15,000 ft (operating)
Vibration	RTCA/DO-160G, Section 8, Category S, Curve L (random) (IR/UV CU) RTCA/DO-160C, Section 8, Curve T (sinusoidal) (IR/UV Scan Head)
Humidity	RTCA/DO-160C, Section 6, Category A (IR/UV Scan Head) RTCA/DO-160G, Section 6, Category B (IR/UV Control Unit)

MECHANICAL PROPERTIES	
Environmental qualification	In accordance with RTCA/DO-160C (IR/UV Scan Head) In accordance with RTCA/DO-160G (IR/UV CU)
Electromagnetic compatibility	In accordance with MIL-STD-461D (IR/UV Scan Head) In accordance with RCA/DO-160G (IR/UV CU)

