Система для вертолетов и неподвижных крыльев ORsolar
Технические характеристики

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ogf@nt-rt.ru || https://ofil.nt-rt.ru/

OFIL SYSTEMS >>Makes UVisible

ORSOLAR ROM

OIL-SPILL REMOTE SENSING OFFSHORE LOCATING AND RECORDING SYSTEM

ORSOLAR-ROM is an encapsulated gimbaled compound imager on aircrafts dedicated to provide visual information about existing oil spill incidents. ORSOLAR-ROM conceives oil spots through their solar UV reflections and thermal differences, and can define floating slicks and sheens of oil spill incidents. ORSOLAR-ROM incorporates a selection of high-end sensors with complementary capabilities, supplying data about oil spill boundaries, location & hints about their thickness. ORSOLAR-ROM is a major player in handling cases of spill by transmitting valuable information from nearby and distant hard to get areas. The reliable on-time information provided by ORSOLAR facilitates speedy response actions. ORSOLAR-ROM can detect sheens as thin as 0.1µm and show clearly their boundaries with water. Ofil's ORSOLAR-ROM is a premium choice for detecting marine oil spills and offshore pipelines' leaks. Findings are also valuable during cleaning actions and are used to evaluate dispersant operations and efficiency. Recorded data is valuable for long term analysis and to formulate guidelines. ORSOLAR-ROM is configured for gyro stabilized gimbaled payloads of sizes and mounts that match most aircrafts.

- >> Real time information
- >> Information about location, size & spread of spill
- >> Detecting thin & thick layers of oil
- >> Assessing clean-up efficiency
- >> Fit for Fixed & Rotor wing aircrafts
- >> HD video recording of findings
- >> Compound solution with optional sensors
- >> UV + IR + TV + Laser + Photo

REAL TIME

Airborne sensors are necessary for detailed oil spill analysis. Ofil's ORSOLOAR-ROM is dedicated to remote sensing providing real-time information necessary to detect marine oil spills, and effectively responding early and rapidly to this kind of an incident.

ESSENTIAL INFORMATION

ORSOLAR-ROM's high sensitivity sensors enable detection of oil spills from afar and nearby during high speed flight of 150 knots at 1000ft. The compound system includes a combination of sensors that assist in modeling the spread of an oil spill and assist in handling cleanup operations.

REFLECTED SOLAR RADIATION

ORSOLAR-ROM uses passive UV & IR sensors that capture the solar radiation reflected by the sea surface and thermal differences. Oil has stronger reflectivity than water in the UV region, and a lower emissivity than water in the thermal IR region. Thin oil layers of 0.1 micron can be detected by ORSOLAR-ROM

DOCUMENTATION

ORSOLAR-ROM supports data management systems by recording and storing findings. The information obtained can be integrated into existing data management systems and used to evaluate, analyze and formulate guidelines.

COMPOUND SOLUTION

Multiple sensors can provide the essential information necessary for effective oil spill management. ORSOLAR-ROM provides information about the location and spread of spills over large and small areas and indirect hints of their thickness distribution. Visible sensors are used to zoom-in for detection and documentation of the damages involved.

MODULAR SUPERIOR PERFORMANCE

ORSOLAR-ROM with its outstanding performance is customizable per specific customers' needs and can include various gimbaled combinations of inspection technologies for various aircraft types.

PANORAMIC VIEW

orsolaROM features wide field of view cameras with 360^0 AZ coverage, providing a clear panoramic view of the scanned area

TECHNICAL SPECIFICATIONS

CAN BE ACCOMMODATED TO CUSTOMERS' REQUIREMENTS

UV IMAGER	
Resolution	768x576
Spectral Range	340-370nm
Field of View H x V	30°
Zoom	10 optical x 12 digital, attained within 1 second
IR THERMAL CAMERA	
Lens	30mm
Detector Array Size	1024x768 pixels
Thermal Sensitivity	Better than 50mK @ 30°C
Spectral Range	7.5-14µm
Digital Zoom	Yes
Thermal Resolution	50mK
VIDEO CAMERA	
Image Sensor	1/3" type CMOS
Picture Quality	2.38 Megapixels (PAL, NTSC)
Spectral Range	400-650nm
Resolution	1920x1080p
Lens	30x Optical
Digital Zoom	12x (360x with optical zoom)
Min. Illumination	0.35 Lux (F1.6, ICR off); 0.095 Lux (F1.6, ICR on)
Viewing angle	63.7° (wide end) to 2.3° (tele end)
PHOTO (FRAME CAMERA)	
Resolution	36Mpixel
Speed	6fps
Sensor	DX-Format CMOS Sensor
Lense	AF DC-Nikkor 50mm
Features	GPS input for image tagging, Video Out (Showing last stored picture) USBII interface for camera setup , Camera Control Pro Software
LASER RANGE FINDER	
Wavelength	1550nm
Range Peformance	up to 1900m (Nato target)
Accuracy	1m
Repetition Rate	1Hz

OFIL SYSTEMS >>*Makes UVisible*

ORSOLAR-uas &OEM

OIL-SPILL IMAGING SYSTEMS FOR UAS

ORSOLAR-uas is an oil spill imaging system mounted on a UAS transmitting visual data of existing oil spill spots. ORSOLAR-uas defines clearly existing layers of oil spill. The system is offered both on a UAS and as a module for UAS, with one or more sensors. UV sensor depicts oil spots by looking at solar UV reflections, while IR sensor depicts oil spill spots due to differences in thermal emissions of oil and water. UV and IR sensors complement each other both in their operation time and in the type of information they provide. IR detects thicker layers of oil slicks of at least10µm-100µm, while UV detects even thinner layers of oil sheens of at least 0.1µm-10µm including emulsion. The \nformation provided by the system assists in evaluating the extent of the oil spread, cleaning efficiency and indirectly infer layers' thickness. ORSOLAR-uas is a cost effective solution, enables fast mobilisation, uses up-right takeoff and incurs low cost maintenance. It is remotely operated and enables access to dangerous hard to get areas. ORSOLAR provides on-time information for speedy response and due to its low operation costs repeated follow up flights are feasible.

- >> Real-time information
- >> Information about location, size & spread of spill
- >> Detecting thin layers of oil and of emulsions
- >> Assessing clean-up efficiency
- >> Fit for UAS and compact gimbal payloads
- >> High resolution videos
- >> Optional combinations of multi spectral sensors
- >> Options: UAS & sensors, or OEM modules

REAL TIME

Airborne sensors are necessary for detailed oil spill analysis. Moreover, their added value is in their ability to provide information in real-time from the incidents' locations. Ofil's ORSOLOAR-uas is an airborne remote sensing system providing reliable readable information just-on-time for rapid response.

ESSENTIAL SAFE INFORMATION

Remotely controlled, ORSOLAR-uas enables safely detecting oil spills in hard to get areas. The compound multi spectral systems render complementary data creating a comprehensive view of the spill condition.

DOCUMENTATION

ORSOLAR-uas transmits data to the remote control base where data can be stored as video clips and used for evaluation and analysis.

COST EFFECTIVE SOLUTION

ORSOLAR-uas is a cost effective source of information. UAS takes off vertically and does not require special runways. Using UAS to evaluate cleaning efficiency is in particular rewarding.

REFLECTED SOLAR RADIATION

ORSOLAR-uas uses passive sensors: UV sensor captures the solar radiation reflected by the sea surface and the IR sensor captures differences in thermal emissivity. Oil has stronger reflectivity than water in the UV region, and a different thermal emissivity from water, observed in the IR region.

OPTIONAL OEM MODULE

ORSOLAR-uas is offered as a stand alone module that can be incorporated in existing fleets of unmanned aircraft. OEM modules are supplied with sets of commands.

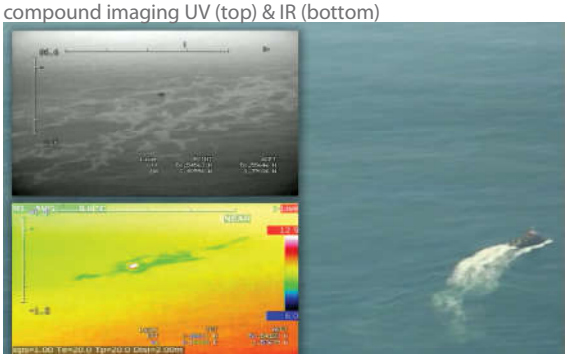
TECHNICAL SPECIFICATIONS

CAN BE ACCOMMODATED TO CUSTOMERS' REQUIREMENTS

UV IMAGER	
Resolution	768x576 pixels
Spectral Range	340-370nm
Field of View H x V	30°
Dimensions	105x40x40mm | 4.13 X 1.57 x 1.57"
Weight	450gr | 0.99 Lb
Power Requirement & Consupmtion	12V, up to 4W
IR THERMAL CAMERA - OPTIONAL	
Lens	options: 9/13/19 mm
Detector Array Size	640x512 pixels
Full Frame Rates	30Hz
Type	Uncooled VOx Microbolometer
Image Optimization for sUAS	Yes
Zoom	Yes - adjustable via PWM Digintal
Dimensions	64x44x44mm | 2.5x1.75x1.75"
Weight	110gr | 0.24Lb
Power Requirement a & Consupmtion	4.8 - 6.0 VDC, 2.1W (3.9W at peak)
VIDEO CAMERA - OPTIONAL	
Image Sensor	1/2.8- type Exmor CMOS
Picture Quality	3.27 Megapixels
Spectral Range	400-650nm
Output Pixels (HxV)	1920x1080, 1280x720p
Digital Zoom	12x (36x with optical zoom)
Min. Illumination	1 Lx (Shutter speed 1/30 sec)
Aperture Control	16 steps
Focusing System	AF, Manual,
Viewing Angle	63.7° (wide end) to 2.3° (tele end)
Dimensions	50x47.6x54 | 19.6x18.7x21.2"
Weight	83gr | 0.182Lb
Power Requirement a & Consupmtion	5.0 - 5.5VDC, Less than 1.2W

UV SENSOR

compound imaging UV (top) & IR (bottom)



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