



# 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 least 10µm-100µm, while UV detects even thinner layers of oil sheens of at least 0.1µm-10µm including emulsion. The

Information 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

### 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.

- >> Fit for UAS and compact gimbal payloads
- >> High resolution videos
- >> Optional combinations of multi spectral sensors
- >> Options: UAS & sensors, or OEM modules

### 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 & Consumption	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 Digital
Dimensions	64x44x44mm   2.5x1.75x1.75"
Weight	110gr   0.24Lb
Power Requirement a & Consumption	4.8 - 6.0 VDC, 2.1W (3.9W at peak)

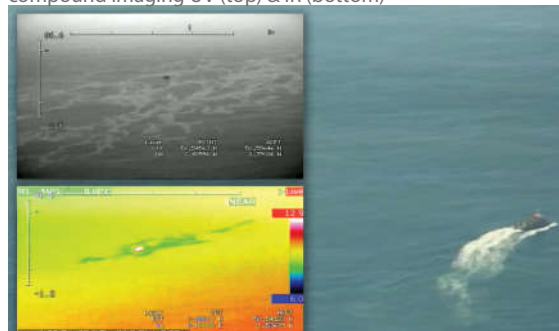
## VIDEO CAMERA - OPTIONAL

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 & Consumption	5.0 - 5.5VDC, Less than 1.2W

UV SENSOR



compound imaging UV (top) & IR (bottom)



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