

Online Oil Pollution Alarm System

ATE5100

Product Features

- Multifunctional: oil pollution alarm, water level monitoring, on-site video evidence collection, 5G transmission, GPS positioning (optional);
- High accuracy, fluorescence is the fingerprint spectrum of substances, fluorescence only occurs in the presence of oil spills.
- Remote sensing monitoring, no contact with the water surface required
- High-frequency modulated fluorescence, operational both day and night
- High detection sensitivity, capable of detecting oil content at ppm levels
- Monitoring height: 0-30 meters
- Can operate both day and night;
- RS485, LAN, 5G (optional) module output, real-time update of monitoring data and on-site footage in the central control room
- Sound and light alarm

Application fields

1. Port oil spill alarm
2. Oil spill alarm detection in rivers and lakes
3. Oil spill alarm detection in oceans

Product Appearance



Comprehensive overview

The significant impact of oil spills on marine ecosystems has attracted global attention. Offshore drilling platforms and ship accidents are the main sources of oil spills. The ATE5100 oil pollution alarm system is a new generation of oil pollution remote sensing detector launched by Optosky. The ATE5100 adopts the world's leading high-frequency modulation laser-induced fluorescence (Laser-Induced Fluorescence, LIF) high-speed imaging remote sensing technology, providing a new and more powerful technical means for environmental monitoring of pollution situations. The laser-induced fluorescence method utilizes specific spectral characteristics to identify different types of released oil and study the effects of weathering and other factors.

ATE5100 also integrates functions such as water level monitoring, on-site video evidence collection, 5G transmission, and GPS positioning, making it a brand new type of product.

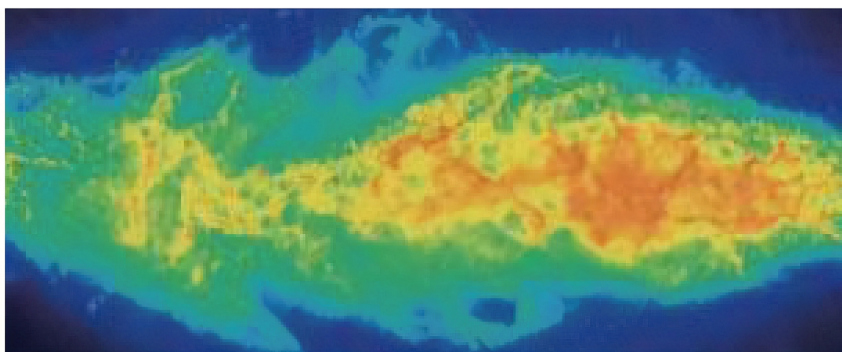
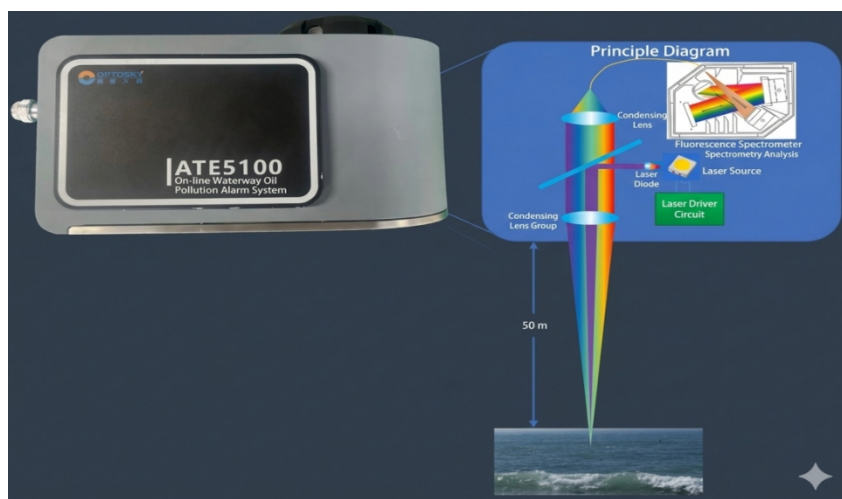
ATE5100 can be installed on a vertical pole to monitor the water surface in real-time, making it an essential instrument for emergency departments to monitor oil pollution.

ATE5100 Remote Sensing Detection Principles

ATE5100 adopts the ultraviolet fluorescence oil detection method, which is one of the standard methods for oil detection in the environmental protection field. It uses ultraviolet light of a specific wavelength to irradiate oil substances on the water surface. The polycyclic aromatic hydrocarbons in the oil substances absorb the energy and become excited, thereby producing fluorescence of a specific wavelength.

The intensity of the fluorescence is proportional to the intensity of the excitation light and the amount of the measured substance. Therefore, based on the fluorescence effect of these oil substances, the oil pollution on the water surface can be detected. This method is particularly effective for mineral oils, especially heavier components such as petroleum; it has high sensitivity and can detect levels as low as sub-ppm (ppm: parts per million, the mass of solute per million parts of the total solution mass). Additionally, it has fewer interfering factors and is currently one of the most commonly used methods for detecting oil on water surfaces.

ATE5100 drone fluorescence imaging oil pollution remote sensing detection system integrates a laser and a spectral analysis system onto a drone. It emits laser beams from the air towards the water surface (sea surface, river surface). The oil pollution on the water surface absorbs the ultraviolet light and emits fluorescence of a specific wavelength. The drone collects the fluorescence signals for analysis, allowing for the assessment of oil pollution on the water surface.



ATE5100 Online River Oil Pollution Alarm System Working Principle

1. Specifications

Functional Modules	Parameters	
Oil Pollution Alarm	Measurement Target	Petroleum, lubricating oil, diesel, gasoline, kerosene, heavy oil, etc.
	Measurement Principle	Laser Induced Fluorescence Technology (LIF)
	Measurement of Oil Film Thickness	Thickness can be measured at 20um
	Measurement Area	Circular
	Working Time	Operations can be conducted both day and night
Level Radar	Measurement Range	30m (customizable)
	Measurement deviation	± 5mm
	Measurement frequency	W frequency band (80GHz technology)
	Beam angle	8 degrees
Video surveillance (customizable)	Image Resolution	2560×1440
	Sensor Type	1/1.8" progressive scan CMOS
	Minimum Illumination	Color: 0.005 Lux @(F1.3, AGC ON); Black and White: 0.001 Lux @(F1.3, AGC ON); 0 Lux with IR
	Focal Length	2.8~12mm4 Optical Zoom
	Field of View Angle	107.4~39.8 degrees (wide angle - telephoto)
	Maximum aperture number	F1.3
Whole machine	Installation height	0~30 m (customizable)
	GPS positioning accuracy	± 1m
	Power consumption	Less than 50W
	Power Supply	DC12V, 5A
	Weight	3KG
	Environmental Requirements	-5~45°C ; Relative Humidity < 90%, no condensation

2. Product Applications



Oil spill detection on offshore oil drilling platforms

Product data information is current as of publication data.
Products conform to specifications per the terms of Optosky
Standard warranty.



Port oil spill detection

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1503 Bld. A04, 3rd Software Park, Jimei, Xiamen,
361005, China
Tel: +86-592-6102588



Oil spill detection during offshore oil transportation



Oil spill detection on rivers and lakes

3. Environmental monitoring product series produced by Optosky

