PhotonTec™

Smart Sensing for Safer and Cleaner Tomorrow

Hawk Series Sensors: Non-Contact Optical Monitoring & Detection for Liquid Hydrocarbons, HABs & CDOM

Patented CFRS™ Technology—Field-Proven Edge/IoT-Ready Remote Sensing for Leaks, Spills & Contamination

Hawk Hydrocarbon Sensors deliver continuous, non-contact monitoring and early detection of oils, fuels, and produced water on solid surfaces, ground, and water. Patented CFRS optical design ensures high sensitivity and reliable detection, helping improve safety and reduce environmental risk across diverse industries.

BlueHawk™ Algae Sensors provide real-time, non-contact monitoring of blue-green (cyanobacteria) and green algae in water based on chlorophyll, phycocyanin & phycoerythrin measurements.

Hawk sensors operate on complex surfaces and turbulent waters. The long detection range (33+ ft/10+ m) allows installation on nearby and distant platforms, enabling non-intrusive, low-maintenance monitoring with minimal disruption. They can also be deployed on drones, vessels, and vehicles for mobile monitoring.

A pan-tilt mount enables coverage up to 1,600 sq ft (150 m²) from a single point. Rugged, IP68-rated protection, small size, low weight, and low power consumption make Hawks suitable for challenging environments, including battery- or solar-powered applications.

Non-Contact, Non-Intrusive, Non-Biofouling Leak, Spill & Contamination Detection

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Operates on Ground, Solid Surfaces & Water

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High Sensitivity

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Severity Measurement

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Detects a Wide Range of Petroleum Products & Algae/HABs

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Long Detection Range & Large Coverage

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24/7 Operation

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Automatic Alarms & Real-Time Data

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Fixed & Mobile Use

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IP68-Rated Protection, HazLoc/ATEX Optional

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Standalone or Networked Operation

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Low Maintenance

APPLICATIONS

- Oil & Gas
- Water Systems
- Ports & Harbors
- Power Generation
- General Industry

Non-Contact Fluorometric Detection

Hawk sensors project ultraviolet (UV) or visible light pulses onto the monitored surface. When this light interacts with hydrocarbons in oils and fuels or photosynthetic pigments in algae and HABs, it causes them to emit fluorescent light. The sensor measures its intensity (greater presence = higher intensity); exceeding a user-set threshold triggers an alarm or external device via relay output, or sends a signal via wired/wireless communication. Real-time monitoring data can also be continuously sent to control systems or software applications.

Available Hawk Sensor Models


BlueHawk


BlueHawk HazLoc


TinyHawk


TinyHawk HazLoc

Patented CFRS™ Technology

Versatile Detection with UVA/UVB/Vis: BlueHawk can be configured for UVA, UVB and visible spectral bands, while TinyHawk uses UVA & UVB. UVA and UVB enable detection of light to heavy oils and colored dissolved organic matter (CDOM); visible light is used for measuring chlorophyll, phycocyanin, and phycoerythrin levels in algae and HABs.

Coaxial Fluorometric Remote Sensing (CFRS): Patented CFRS optical design with large apertures provides high signal strength, sensitivity, and tolerance to varying surface distances and ambient conditions. It also enables use in mobile and pan-tilt installations.

Specifications

Parameter	BlueHawk™	TinyHawk™
Optical Design	Coaxial CFRS	Traditional non-coaxial
Light Source	LED with self-diagnostics	LED
Spectral Bands	UVA / UVB / Vis	UVA / UVB
Monitored Surfaces	Dry & wet surfaces, ground, standing to turbulent waters	Static dry and wet surfaces, ground, lentic waters
Detectable Hydrocarbons	Light to heavy refined oils and fuels, crude oil, PW, other	Light to heavy refined oils and fuels, crude, PW, other
Detectable Algae & DOM	FW & M cyanobacteria, green, other microalgae, CDOM	N/A
Sensitivity	Sub-µm/sub-ppm, adjustable	Sub-µm/sub-ppm, adjustable
Detection Distance	0.7 to 33+ ft (0.2 to 10+ m)	0.7 to 10.0 ft (0.2 to 3.0 m)
Monitoring Coverage	Up to 1,600 sq ft (150 m²) PT	Ø10” (0.26 m) @ 10 ft (3 m)
Detection Angle	±45° from surface normal	±45° from surface normal
Pulse Rate	Up to 10 Hz, adjustable	Up to 10 Hz, adjustable
Protection (standard/hazloc)	IP68 / Class I/II/III ATEX	IP68 / Class I/II/III ATEX
Size (standard enclosure)	Ø4” × 9.4” (Ø10 cm × 24 cm)	Ø4” × 3.5” (Ø10 cm × 9 cm)
Power	10–36 VDC, 2 W	12–35 VDC, 1.5 W
Interface & Communication	RS-485 (Modbus RTU), USB; 4-20 mA, SPDT relay	RS-485 (Modbus RTU), USB; 4-20 mA / SPDT relay

Unique Features

UVA/UVB/Vis Detection for Oils, Fuels, Algae & CDOM

Detection Range Over 33 ft (10 m)

Coverage Up to 1,600 sq ft (150 m²)

High Tolerance for Varying Surface Distances

Wide Detection Angle & High Pulse Rate for Complex Surfaces & Dynamic Waters

IP68-Rated Protection

Fixed or Mobile Use

Compact, Lightweight, Low Power Use

Patented CFRS Optics with Self-Diagnostics

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