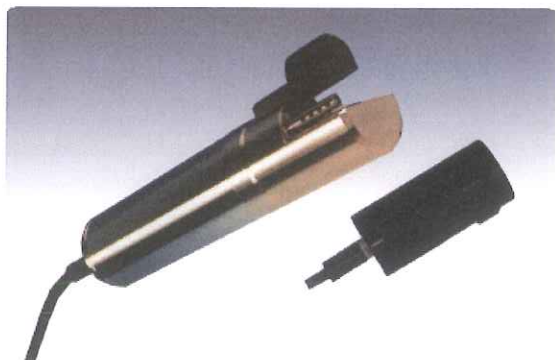


UviLux & UV AquaTracka Fluorometers: Applications



Chelsea Technologies Group Ltd



Sensitive digital *in-situ* UV hydrocarbon monitoring fluorometers

Chelsea Technologies Group has a proven range of in-situ fluorometers optimised for monitoring crude and refined oil from coastal margins to deep ocean. Originally designed for military use these highly reliable, robust, high sensitivity fluorometers are in use around the world. There has been an unprecedented demand for these sensors following the oil spill in the Gulf of Mexico.

The UV AquaTracka (shown far left) is an extremely sensitive UV fluorometers for the measurement in real-time of refined hydrocarbons (360nm) or crude hydrocarbons (440nm). Rated to 6000m with optional ambient light baffling cowl for use in surface waters.

The UviLux is a small low cost, highly sensitive digital fluorometers to monitor in real-time concentrations of refined hydrocarbons (365nm) or crude hydrocarbons (450nm). Rated to 600m.

Environmental monitoring: Offshore Oil Exploration



The growth in oil exploration has facilitated a demand from offshore oil companies for high quality surveying and monitoring data. Using data from sensors such as the Chelsea **UV AquaTracka** deployed from the Liquid Robotics' Wave Glider®, real-time information on water quality can be provided to the oil industry at a fraction of the cost of traditional data acquisition methods such as support ships and ROV.

Measuring hydrocarbons in tough conditions can be a difficult job but the Chelsea's UV fluorometers are up to the task. They have been ruthlessly tested over the years in various seas and found to be consistent, accurate and precise, yet rugged enough to stand the worst of conditions. They have seen service in very hostile environments and can withstand harsh offshore conditions for months at a time.

Monitoring Airport Run-off



Water pollution from airport run-off is increasingly coming under public and government scrutiny. As environmental regulations tighten, the ability to monitor for aviation fuel contamination from runway run-off has become essential.

Monitoring sites at airports can be extremely challenging often with no power or telephone lines available and with limited access for maintenance. Chelsea's robust **UviLux Hydrocarbon Sensor** with its low power consumption and high accuracy is ideally suited for this application. Installed at various locations around the airport, deployed with its own integrated anti-biofouling system, utilising the GSM network, the monitoring sites send data to a secure ftp site, where any internet enabled device can access the data. In this way the systems act as any early warning system allowing any hydrocarbon discharge to be detected in real-time.

Optional environmental monitoring features include remote control to allow the user to turn equipment on and off, change the sample rate and detection range. There is also a facility to allow SMS text and email alarm notifications triggered by user-defined set-points together with customised web pages, data displays and automated data downloads via an ftp server.

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Water Quality Monitors for Ship Exhaust Gas Cleaning Systems



To comply with International Maritime Organization (IMO) environmental regulations, global shipping is required to meet specific exhaust gas emission levels. These will become even more stringent in the next few years. Chelsea is supplying robust water quality sensor systems for monitoring hydrocarbons, turbidity & pH for use in exhaust gas cleaning systems. These systems continuously monitor the effectiveness of the gas exhaust cleaning system. Chelsea has provided systems in both new ship builds and retrofits.

A typical system consists of sensor cabinets monitoring the seawater intake and discharge. This enables comparison data to confirm the exhaust cleaning systems is operating within acceptable emissions limits. Each cabinet monitors Polycyclic Aromatic Hydrocarbon (PAH), turbidity, temperature and pH and incorporates a flow switch. Data from the sensors is relayed to a main control system via an Ethernet connection. Chelsea's low cost **UviLux Hydrocarbon Sensor** has been re-configured for the specific requirements for both the PAH and turbidity measurements, the latter being compliant with ISO7027:1999 International Standard.

This work expands Chelsea's existing capability in the supply of in-line monitoring systems to the maritime sector and is a natural extension to our business supplying FerryBox environmental systems for commercial vessels and ships of opportunity.

Environmental Hydrocarbon Detection



Chelsea's **UviLux Hydrocarbon Sensor** is optimised to monitor both crude and refined oil from coastal margins to shallow ocean (600m). The UviLux is extremely sensitive, gives instant results, is portable and very easy to use.

The **UviLux Hydrocarbon Sensor** was recently used to monitor potential spillage during the procedure of off-loading the ship's fuel from the stricken vessel *Costa Concordia* in Italy. The sensor was profiled through the water column and via the Graphical User Interface, data was collected in real-time. Once the background level was determined prior to offload, continued monitoring enabled any potential leak/spillage to be detected.

A number of sensors are currently in operation in a petroleum processing plant in Nigeria.

Sub-Sea Pipeline Leak Detection System



The highly reliable **UV AquaTracka & UviLux Pipeline Leak Detection Systems** has an impressive track record of providing a quick and cost-effective methods of detecting leaks for the oil and gas industries. The fluorometers have been optimised to monitor leaks of crude and refined oil from offshore platforms and sub-sea pipes. They can also be configured to detect a range of control fluids in use in the offshore industry (a full list of detectable products can be supplied upon request, or alternatively samples can be tested at Chelsea's laboratories).

These highly sensitive fluorometers are in use around the world and there has been unprecedented demand for them following the oil spill in the Gulf of Mexico.

Taking full advantage of the functionality of the fluorometers, they can easily be integrated into ROV platforms and/or can be used hand-held by divers. Data is presented in real-time via a Graphical User Interface for immediate analysis. The system is user friendly and easy to use so there is no need for specialised engineers to be mobilised with the equipment.



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