OceanTools
D8 DyeTector ®
Dual channel subsea dye detection system

The **D8 DyeTector** is an advanced subsea leak, dye and cement detector developed by **OceanTools** to detect Rhodamine *and* Ultraviolet dyes using a single compact ROV mounted device.

Overview

The ROV mounted **D8 DyeTector** has two sets of optical components, configured to detect both **C-Dye 530** or other rhodamine dyes and **C-Dye 370** or other ultraviolet dyes. One set of optics is activated at a time, so that rhodamine or ultraviolet dyes can be detected in isolation.

High intensity LED light is focused through lenses and filters to create a concentrated beam that is tuned to a specific wavelength to cause maximum molecular agitation and fluorescence of the dye. A sophisticated optical multiplier employs light amplification technology to detect fluorescence from the agitated dye molecules. Advanced detection electronics convert the measurements to digital data.

The powerful **DyeTector** technology is capable of detecting single photons of light. It can detect down to single digit parts per billion of dye dissolved in water and is approximately one hundred times more sensitive than the human eye. This makes it ideal for detecting the very smallest of leaks or traces of dye dosed cement.

Detection can be carried out at a safe working distance. Advanced ambient light suppression technology allows the **DyeTector** to be used in high levels of background light and also means the ROV's lights do not need to be turned off.

The **DyeTector** is machined from aviation grade titanium and sapphire glass to give it a standard depth rating of 4000 metres. Simple and intuitive DyeTection software is used to select the required dye detection optics, display detection data at the surface, and record data for future analysis.

ISO 9001 QUALITY MANAGEMENT

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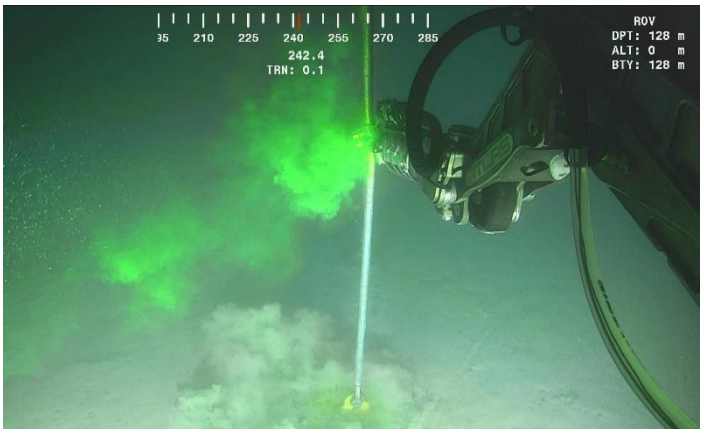
Applications

The **DyeTector** may be used to detect leaks from subsea infrastructure such as manifolds, wellheads or pipelines if a suitable dye has been added to the infrastructure fluids. Pipeline or flow line pressure testing can be monitored by the **DyeTector** if dye impregnated fluids are used.

The **DyeTector** may also be used during casing cementing operations to detect cement returns. A tracer dye is added to either the seawater spacer or to the cement itself. Unlike pH meters which rely upon the cement passing over them, a **DyeTector** can detect cement from a distance of several metres depending on the dye concentration.



Cement detection with a DyeTector

Detection Dyes

As well as offering the **DyeTector**, OceanTools can supply dyes that have been specifically developed by our friends at Subsea Chemistry Ltd to precisely match the characteristics of the **DyeTector**. In short, there is no system more capable of detecting dye subsea, nor is there a more detectable dye.

The **D8 DyeTector** is designed to excite and detect both **C-Dye 530** (Rhodamine) and **C-Dye 370** (Ultraviolet) but can also be used to detect the following:

- Rhodamine dyes such as B275, RX9022, Pelagic 100 Pink
- Ultraviolet dyes such as RX9026E, Pelagic 100, Champion Cleardye, Castrol HT2

Please contact OceanTools for advice on other dyes that may be detected by the **DyeTector**.

Key Features

- Rhodamine and Ultraviolet dye detection
- Focused beam and filtered high intensity LEDs
- Light amplification and photon detection technology
- Compact alternative to using separate detectors

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Specifications

	D8	
Target dye	Rhodamine	Ultraviolet
Excitation wavelength	520–530nm	360–370nm
Detection wavelength	570–590nm	410–450nm
Detection range	Up to 10m	
Input voltage	18–36VDC	
Maximum current	1A @ 24VDC	
Data communications	RS232 / RS485	
Standard connector	Glenair G5507-1508	
Depth rating	4000m	
Housing material	Titanium	
Window material	Sapphire Glass	
Length (excl connector)	175mm	
Maximum diameter	98mm	
Weight in air	3.4kg	
Weight in water	2.2kg	

Related Products

D7 DyeTector single channel dye detection systems are designed to excite and detect a particular rhodamine, fluorescein or ultraviolet dye.

D9 DyeTector diver held systems are self-contained dye detection units featuring ruggedised single switch operation, a built-in detection display and a depth rating in excess of 250m.

Product datasheets, GA drawings, case studies and other supporting documents are available to download from data.oceantools.co.uk

All specifications are subject to change without notice. E&OE.

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