



OceanTools

D10 DyeTector®

Dual channel subsea dye detection system

The **D10 DyeTector** is an advanced subsea leak and dye detector developed by **OceanTools** to detect two different types of dye using a single compact ROV mounted device.



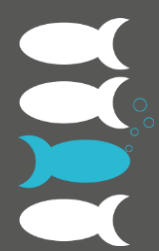
Overview

The ROV mounted **D10 DyeTector** has two sets of optical components, configured to detect any two types of dye from a choice of **C-Dye** and other rhodamine dyes, fluorescein dyes or **C-Dye 370** and other ultraviolet dyes. One set of optics is activated at a time, so that rhodamine or fluorescein or ultraviolet dyes can be detected in isolation.

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, or during casing cementing operations to detect cement returns.

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 even the smallest amounts of fluorescence from the agitated dye molecules. Advanced detection electronics convert the measurements to digital data.

The powerful **D10 DyeTector** uses technology 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.



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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.

Operation

The ROV mounted **D10 DyeTector** is machined from aviation grade titanium and sapphire glass to give it a standard depth rating of 4000 metres.

Detection can be carried out at a safe working distance, and the ROV's lights do not have to be turned off when the **DyeTector** is in operation.

Simple and intuitive DyeTector software is used to select the required dye detection optics, display detection data at the surface, and record data for future analysis.

Detection Dyes

As well as offering the **DyeTector**, OceanTools has a dye that has been specifically developed by our friends at Offshore Environmental Oils 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.

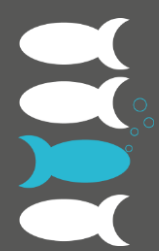
The **D10 DyeTector** is typically configured to excite and detect OceanTools **C-Dye** and **C-Dye 370**, but can be configured to detect any two of the following types of dye:

- Rhodamine dyes such as B275, RX9022, Pelagic 100 Pink
- Fluorescein dyes such as HW443, HW540P, Oceanic Yellow LTF
- Ultraviolet dyes such as RX9026E, Pelagic 100, Champion Cleardye, Castrol HT2

Key Features

- Rhodamine, Fluorescein or 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

	D10		
Target dye *	Rhodamine	Fluorescein	Ultraviolet
Excitation wavelength	520–530nm	450–460nm	360–370nm
Detection wavelength	570–590nm	510–520nm	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		
<i>* Each unit is configured to detect any 2 of the target dye types</i>			

Related Products

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

D3 and D5 DyeLighter systems are a modern replacement for old-fashioned “black lights” that agitate fluorescing dye to allow larger leaks to be detected visually by diver or ROV camera.

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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