

MODERNWATER

AlgaeChek™

Portable Fluorometer for the Detection of Chlorophyll-a or Cyanobacteria

The portable fluorometer provides a cost effective solution to monitor the effects of organic pollution or identify potentially harmful cyanobacteria. AlgaeChek can be configured to detect either Chlorophyll-a, phycoerythrin or phycocyanin. Chlorophyll-a provides an indication of the algal biomass and is often used as an indicator water quality and nutrient pollutants. Phycoerythrin and phycocyanin are pigments found in marine and freshwater cyanobacteria. Cyanobacteria produce toxins that can be harmful to human health or have significant environmental impact. If required the unit could be configured to detect turbidity or tracer dyes.

AlgaeChek is a rugged portable unit that is ideal for testing the relevant water quality parameters. In addition to chlorophyll-a and the pigments associated with marine and freshwater cyanobacteria, the system can be configured to detect turbidity or tracer dyes.

The system can combine a sensor with either a wireless roamer and PDA, or laptop connectivity. It provides a low cost high performance sensor for marine, freshwater or process applications. A Windows based interface is provided that allows the user to both plot and record time stamped data when operating the AlgaeChek directly from a PC.

- Miniature, low cost single wavelength fluorometer
- Range of wavelengths available
- Low power consumption
- Rejection of ambient daylight
- Low noise, high sensitivity
- Results in $\mu\text{g/l}$



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SPECIFICATIONS

| Mechanical | |
|--------------------|---|
| Size | 26.5mm dia x 105mm (140mm including connector) |
| Weight | 100g |
| Pressure housing | Acetal C |
| Depth rating | 600 metres |
| Connector | MCBH-6-MP-SS |
| Electrical | |
| Input Voltage | 11 to 25Vdc |
| Data Output | Digital RS232 and analogue 0 to 5Vdc (RS422 and SDI-12 options) |
| Power Requirements | <1Watt @ 12 volt |

Applications

In-situ chlorophyll and algae class studies

Environment monitoring

Dye tracing

Particulate studies

Process control

Moored, profiled, towed or ROV/ AUV platforms



Process explained

Fluorescence is the emission of light by a substance that has absorbed light. In most cases, the emitted light has a longer wavelength, and therefore lower energy, than the absorbed light. Fluorometry is the measurement of this fluorescence. Different molecules absorb and emit light at specific wavelengths. In order to effectively use fluorometry as a tool for environmental analysis the specific wavelengths of the absorbed and emitted light for the target molecules/compounds needs to be known. Modern Water fluorimeters use LED light source to excite the molecules and then measure the emittance at the desired wavelength. The intensity of the emitted light provides the concentration of the target compound.

What does the AlgaeChek detect?

| Wavelength Option | Dynamic Range | Limit of Detection |
|-----------------------------|---------------|--------------------|
| Chlorophyll-a | 0 to 100 µg/L | <0.01 µg/L |
| Fluorescein | 0 to 100 µg/L | <0.005 µg/L |
| Rhodamine | 0 to 100 µg/L | <0.02 µg/L |
| Phycoerythrin Cyanobacteria | 0 to 100 µg/L | <0.02 µg/L |
| Phycocyanin Cyanobacteria | 0 to 100 µg/L | <0.01 µg/L |
| Turbidity | 0 to 100 FTU | <0.02 FTU |



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