

AQUAtracka III

In-situ Fluorimeter, Nephelometer



APPLICATIONS

- Chlorophyll-a and other fluorophor detection
- Rhodamine and fluorescein dye tracing
- Particle concentration by light scattering
- Profiling, towed, moored or ROV deployment
- Pollution monitoring
- Bio-geo chemical oceanography
- Hydrothermal vent studies



FEATURES

- High sensitivity
- Wide spectral waveband available 400nm to 800nm
- Long term calibration stability
- High ambient light rejection
- High signal to noise ratio
- Single 4 decade logarithmic range
- Dual-beam ratiometric system
- Interface to CTDs and data loggers
- Titanium pressure housing

AQUA^{tracka} III

AQUA^{tracka} III is a compact, lightweight, submersible fluorimeter for the detection of chlorophyll-a, dye tracing or turbidity. Two variants of the instrument are available, both manufactured in titanium, and rated to 2000m and 6000m respectively. For deck and laboratory applications a flow through cowl is available. This instrument can sense chemical fluorescence or light scatter in the visible and near infrared (400 to 800nm). Versatility is achieved by the selection of appropriate optical narrow bandpass filters to match the excitation and emission wavelengths of the fluorophor, e.g., chlorophyll-a, rhodamine or fluorescein. It may be configured as a nephelometer by using the same band pass filters for both excitation and emission.

The AQUA^{tracka} III uses a rugged pulsed xenon light source which is not prone to sudden failure and gives low power consumption with excellent detection limits. Similarly, the photo-diode detector is virtually indestructible and provides excellent calibration stability over long time intervals.

A dual-beam ratiometric arrangement is used with a reference channel monitoring the intensity of each flash, thus compensating for light source ageing. The ratio of the signals from sample and reference channels is computed and output as a logarithmically scaled analogue voltage to give the wide, four decade range of the instrument.

SPECIFICATION

Table of specific determinands, excitation / emission wavelengths & performance. (Centre wavelength and bandwidth are quoted respectively e.g. 440/80). Note: Filter changes and sensitivity optimization are factory activities.

FLUORIMETER	<i>Units</i>	<i>Chlorophyll-a</i>	<i>Rhodamine</i>	<i>Fluorescein</i>
Excitation wavelengths:	(nm)	430/105	500/70	485/22
Emission wavelengths:	(nm)	685/30	590/45	530/30
Concentration Range:	(µg/l)	0.01 - 100	0.01 - 100	0.01 - 100
Resolution:	(µg/l)	0.01	0.01	0.01
Accuracy:	(µg/l)	±0.02 or 3% whichever the greater		
Calibration Standard:	-	Chlorophyll-a	Rhodamine	Fluorescein

NEPHELOMETER	<i>Units</i>	<i>Nephelometer</i>
Excitation wavelengths:	(nm)	440/80*
Emission wavelengths:	(nm)	440/80*
Concentration Range:	(FTU)	0.01 - 100 or 0.02 - 200
Resolution:	(FTU)	0.01 or 0.02
Accuracy (0-10 FTU):	(FTU)	±0.02 or 3% whichever the greater
Calibration Standard:	-	Formazine

*Other wavelengths available on request

Common Specifications

Light source:	Xenon lamp
Life of source:	10 ⁸ flashes
Wavelength range:	400 - 800nm
Detector:	Photodiode
Optical filters:	Wide range of filters available
Depth of operation:	2000m and 6000m versions
Temperature range:	-2 to +32°C

Specific details

Output:	0 to 4V; 1V per decade
Voltage:	Nominal 12V (9-18V)DC
Power	
Consumption:	3W nominal
Weight in air	5.5kg
Weight in water:	3.5kg
Dimensions:	405mm x 88mm dia.

Options: Deck units, calibration equipment.



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