Chelsea Technologies Group Ltd

Configurations

The BOD-Station and BOD-Station Pro have been designed for outdoor operation, where the UviLux fluorometers can be deployed within a water trough or mounted in flow-through manifolds for in-line operation. A single cable connects the UviLux fluorometers to the Watchkeeper display and logger unit, which is powered from a 24 Vdc supply. Signal inputs are presented on the screen and up to three 4 – 20 mA signals can be accessed for data system networking. Audible alarms or control valves can be fitted and programmed to alert or activate when signals exceed user-set thresholds.

Data is recorded onto a 2 Gbyte memory card. Data can be by download via a USB cable, or by removal of the memory card.

Specification

UviLux Fluorometer

Size	Ø70 x 150 mm
Weight	800 g
Pressure rating	60 bar

UviLux Performance

	BOD	**CDOM**
Sensitivity (QSU)	0.01	0.01
Calibrated range (QSU)	600	600
Example compound: sensitivity - range (ppb)	**BOD:** 0.001 - 50mg/L	**PTSA:*** 0.02 - 900

***PTSA** is pyrene tetrasulphonic acid

BOD-Station, single UviLux fluorometer with Flow Manifold

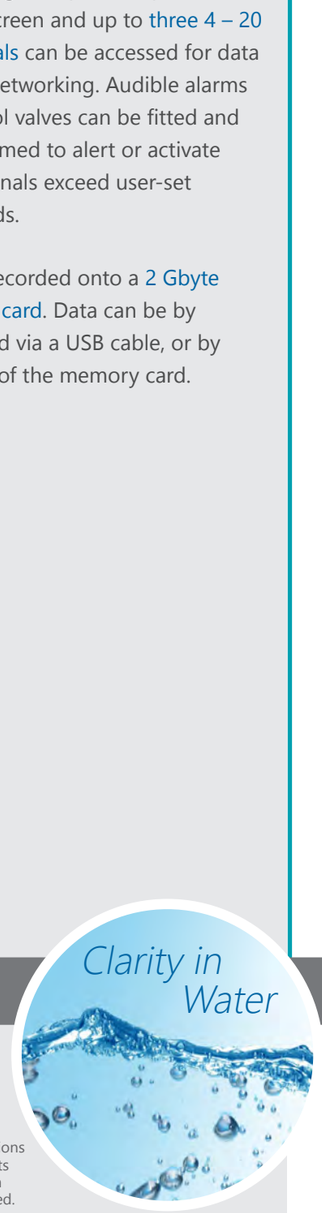
Size	Ø130 x 200 mm
Weight	2.5 kg
Fluid connections	Union, 20mm, PN16
Pressure rating	4 bar
Max operating temp.	55 °C

BOD-Station Pro, two UviLux fluorometers with Flow Manifolds

Size	265 x 200 x 200 mm
Weight	5 kg
Fluid connections	Union, 20mm, PN16
Pressure rating	4 bar
Max operating temp.	55 °C

Watchkeeper display and logger

Display	320 x 240 pixel qVGA backlit LCD
Display size	70 x 50 mm
Size	200 x 110 x 60 mm
Weight	900 g
Memory capacity	2 Gbyte
IP rating	IP67
Voltage input	24 Vdc
Power	2.8 W @ 24 Vdc 4.6 W @ 24 Vdc (Pro)
Temperature range	-20 °C to 55 °C



Contact us today to see how we can help you

In view of our continual improvement, the designs and specifications of our products may vary from those described.

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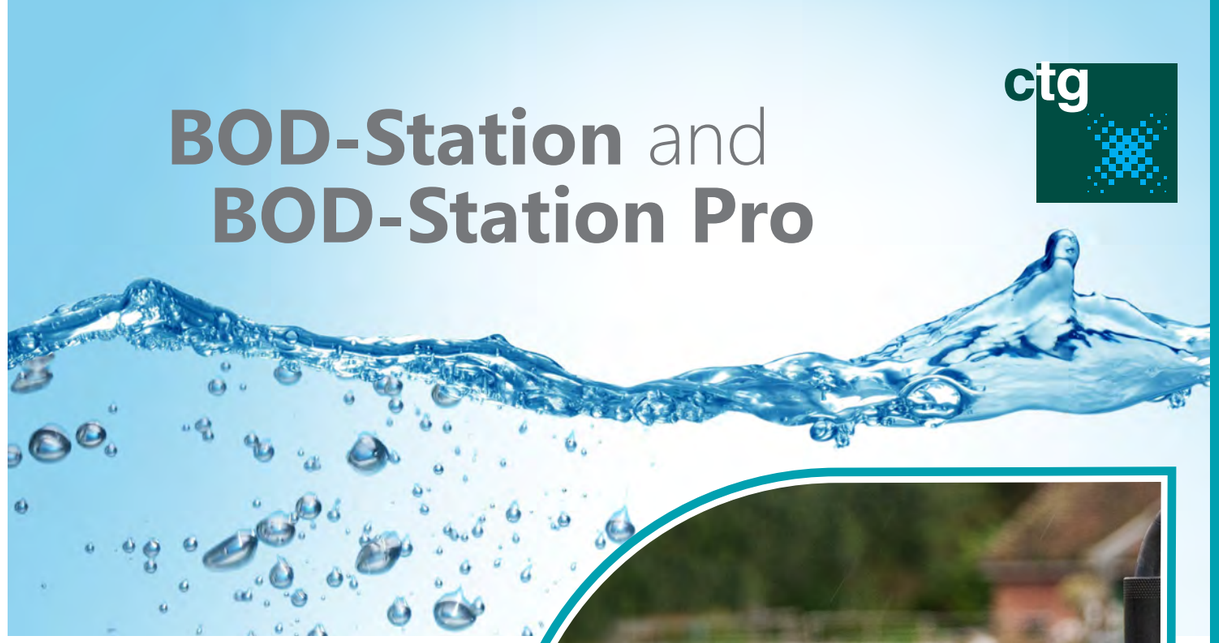
Product Information

BOD-Station and BOD-Station Pro



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BOD-Station provides real-time, highly sensitive assessment of Biological Oxygen Demand within water systems, informing on the impact of biodegradable substances.

Applications

- BOD loading to Waste Water Treatment Works (WWTW)
- Monitoring efficacy of separate processing tanks within WWTWs
- Assessment of WWTW outflow compliance
- Monitoring industrial effluent discharge into surface waters

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Product Information

What can the BOD-Station do for you?

Features

- Real-time indication of BOD levels (in mg/l BOD_5)
- Automated data logging (2Gbyte storage capacity)
- 4 – 20mA output for data export in real-time
- Relay for audible alarm or control valve
- In-line flow-through operation with standard pipe fittings
- High sensitivity

Introduction

CTG's BOD-Station and BOD-Station Pro systems allow water process engineers to assess real-time levels of BOD in water systems. This is achieved by detecting UV Tryptophan fluorescence, which recent publications have shown correlates with the standard 5-day Biological Oxygen Demand (BOD_5) test.

The BOD-Station comprises a CTG UviLux fluorometer and a Watchkeeper wall mounted data display and logger. CTG's UviLux fluorometers detect UV fluorescence with industry-leading sensitivity and selectivity and have been optimized for minimal interference from water turbidity.

Should consider fluorescence spectroscopy as a more accurate, independent and flexible indicator of bioavailability than BOD_5

Science and Total Environment 391 (2008) 149-158

Touch screen display

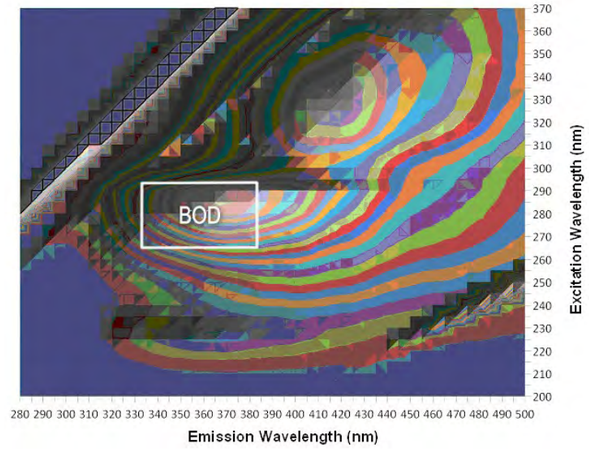
Audible alarms when exceeding thresholds

2gb storage capacity

How does it work?

CTG's BOD-Station and BOD-Station Pro detect UV fluorescence from dissolved organic compounds. These compounds absorb UV light and re-emit a fraction of this energy as fluorescence at longer wavelengths. Fluorescence intensity is directly proportional to concentration. The technique is widely recognised as one of the most sensitive detection methods available.

Tryptophan is an essential amino acid in the human diet and is the main component of protein fluorescence. Recently published data demonstrates strong correlations between Tryptophan fluorescence and the standard BOD_5 water quality test. CTG have established a correlation factor that is used to convert Tryptophan concentrations to BOD_5 values. This has been determined using environmental water samples, however, in conditions where there is a high BOD_5 contribution from suspended solids, a site dependent calibration may be required.



Fluorescence map of an environmental water sample spiked with Tryptophan, indicating BOD-Station measurement window

BOD-Station and BOD Station Pro

The BOD-Station comprises a single CTG UviLux Tryptophan fluorometer and a Watchkeeper wall mounted data display and logger. The BOD-Station Pro includes an additional UviLux sensor for discriminating Tryptophan fluorescence from Coloured Dissolved Organic Matter (CDOM). This is particularly useful when CDOM background levels are high or when correlating BOD levels across a wide range of locations where background CDOM levels are varying.

The UviLux BOD fluorometer is calibrated using standard solutions of Tryptophan. A conversion factor is then applied internally to the measured Tryptophan concentration to provide BOD_5 output in mg/l. The UviLux CDOM sensor reports concentration in units of µg/l and is calibrated using standard solutions of Pyrene (PTSA).