



B503

aquaBio

Microbiological measuring device



Operation

- **Measurement principle.** Based on DST® (Defined Substrate Technology), with an alternate fluorescence and absorbance detection system.
- **Defined Substrate Technology.** aquaBio B503 uses Colilert-18® reagent in liquid form based on DST® for detection of total coliforms and *Escherichia coli*. For determination of enterococci, aquaBio 503 uses Enterolert.
- **Coliforms** use the β -galactosidase to metabolize the specific substrate and generate a yellow color in the medium.
- ***Escherichia coli*** uses β -glucuronidase to metabolize the specific substrate and generate fluorescence. Enterococci use glucosidase to metabolize the specific substrate and generate fluorescence
- The determination of *E. coli*, total coliforms, and enterococci is based on the correlation between the concentration of bacteria and the time when the fluorescence and/or the color appears.
- The sensitivity of the system allows the detection of concentrations of 10^8 MPN after 3 hours.
- **Disinfection of the system.** Independence between samples is ensured by an adequate hydraulic and mechanical management of the system, avoiding contamination between the different samples.

Design

- Hydraulic and fluid management system.
- Thermostatic measuring chamber that includes the bioreactor where the incubation and measurement of the sample that is conducted optically.
- Multi- λ optical measurement system.
- Software and electronics capable of controlling the system and managing the data.

Escherichia coli and total coliforms are key and essential indicators for determining potential water uses and reuses.

The new European regulation 2020/741 on minimum requirements for water reuse, establishes the legal basis for reusing treated water based on the *E. coli* measure. The different uses and treatments are defined according to its concentration.

In addition, directive 2006/7/CE on bathing water quality management defines the classification and quality status of bathing water according to the concentration of *E. coli* and enterococci.

aquaBio is an on-line measuring device especially designed for quantifying *E. coli*, total coliforms and Enterococci in water, in a continuous and automatic way, making it an optimal tool for water management according to its use.

Regarding communication with the control center, it allows the transmission of MQTT messages, which facilitates integration with IoT-oriented services, such as the Adasa's ecoData® Alert and Monitoring System.

Noteworthy Characteristics

- Simultaneous measurement of *Escherichia coli* and total coliforms¹.
- Measurement of Enterococci.
- Calculation of MPN/100 ml in 3 hours for highly polluted waters.
- **Low maintenance.** The system only requires maintenance every 15 days. These biweekly tasks are limited to replacing reagents and a monthly semiautomatic cleaning and replacement of some consumables.
- **Programming of the equipment.** aquaBio B503 is programmable and allows forced analysis using the touch screen of the instrument. There are several operating modes: daily, consecutive, by alarm or by event detection. The analysis is performed by quantification, presence/absence or by quantification limit. Furthermore, it is also designed to analyze both freshwater and seawater. It provides a graphical representation of the accumulated values.
- **Transmission to the control center.** Data can be automatically transmitted to the control centers and to Adasa's ecoData® Alert and Monitoring System, for analysis and management. In addition, aquaBio B503 operates the results and alarms to additional equipment or to additional water monitoring networks.
- **ETV VN20240055.** The statement of verification has been registered under number VN20240055 and is accessible at the following address: http://ec.europa.eu/environment/ecoap/etv_en



All Adasa products are designed and manufactured according to the highest quality standards:

- ISO 9001 Quality Management
- ISO 14001 Environmental Management
- EMAS Eco-Management and Audit Scheme

¹ Simultaneous measurement of *Escherichia coli* and total coliforms is only in freshwater. In salt water only measurement of *Escherichia coli*.



Technical Specifications

Supply voltage and consumption

24VDC (Máx. 13A). Optional external power supply 110-240Vac (50-60Hz) / 24Vdc

Communications

ModBus TCP, MQTT (ecoData®), Ftp, Remote Desktop and WEB access. Other options: Talk to us for more options

Physical ports

Ethernet (RJ45) and USB

User Interface

Touch screen (Color TFT 7")

Measurement principle

Fluorimetric detection for *Escherichia coli* and Enterococci.
Colorimetric detection for total coliforms

Reagent used

IDEXX Colilert-18® in liquid form*. Colilert-18® is a registered trademark.
Enterolert for Enterococci
Cleaning solution

* The liquid form has been developed by Adasa, without IDEXX validation.

Detection limit

1 bacteria in 100 mL

Max. concentration of heterotrophs in sample

2 millions per 100 mL

Temperature regulation

± 0.1 °C

Analysis time

3 - 12 hours, depending on concentration

Dimensions & weight

Coverage without connectors or brushings

Doors closed 693 x 785 x 320 mm H x W x D

Doors opened 693 x 1,120 x 450 mm H x W x D

Net weight 40 kg