Q-BOX SERIES
Q-BOX AQUA
AQUATIC
RESPIROMETRY
PACKAGE

The Q-Box AQUA is used to measure metabolic rate in aquatic animals using intermittent flow respirometry. O2 consumption by the aquatic organism is measured with a dissolved O2 electrode and software. Software provides calculations of the oxygen consumption rate (VO2). Measurements are made sequentially without removing the animal from the sample chamber, and the chamber is flushed between measurements with fresh water under ambient conditions. This intermittent flow method overcomes the disadvantage of continuous closed respirometry in which the dissolved O2 level in the chamber may decrease to a hypoxic level.
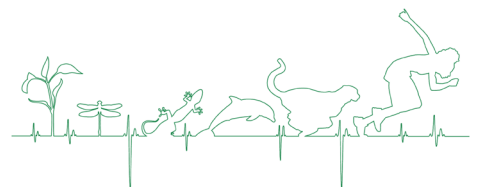
Features:

- Optical DO Probe and Water Bath
- Small Respirometry Chamber (140ml)
- Large Rrespirometry Chamber (660ml)
- Temperature & Salinity Probe for Water Bath
- Liquid Pump (1 LPM) & 3-Way Valve
- Digital Control Unit for 3-Way Valve Control
- 4 Channel Data Interface
- Data Acquisition Software
- Absolute Pressure Sensor
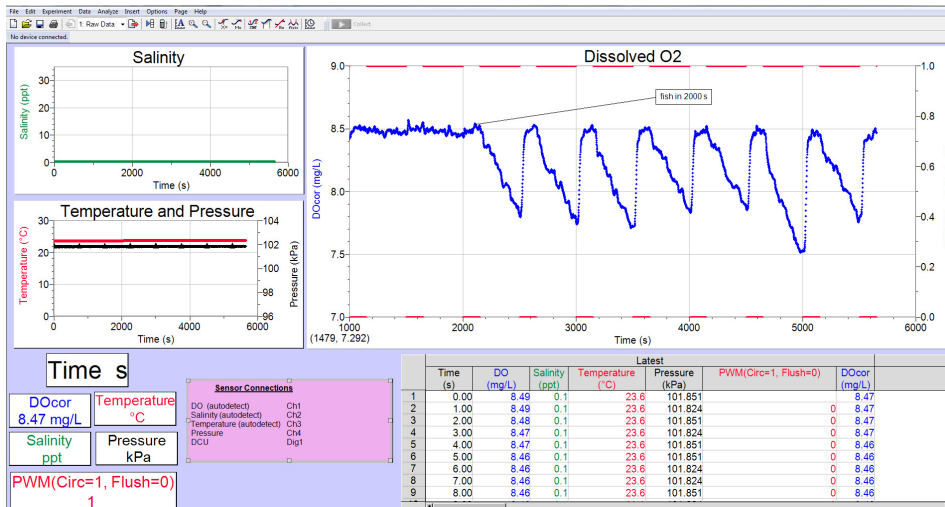- Rugged Weatherproof Case
- Optional Battery Pack

Applications:

- Aquatic Respirometry Studies
- Vertebrate and invertebrate aquatic studies
- Lab and Field Studies

SOFTWARE

Sample Data from a Goldfish

During an experiment, the animal is placed in the chamber which is immersed in a water bath. Water from the bath under ambient conditions is flushed through the chamber to establish baseline measurements. Respiration measurements are made by recirculating the water through the chamber. In this recirculation phase, dissolved O_2 (DO) declines in the closed loop as the animal consumes O_2. From the rate of decline (i.e. the slope of the DO decrease), the respiratory O_2 consumption (VO2) is calculated in the software. During the flush period, the 3-way valve is activated by the software to open the loop. The pump draws water from the bath to flush the chamber with fresh water. During the recirculation phase the 3-way valve is activated by the software to close the loop. The flush-recirculation cycle is then repeated until the experiment is terminated. The times of the flush and recirculation periods are selected by the user. For respirometry measurements of very small aquatic animals consider our Mini-AQUA Package (miniaturized version of the Q-Box AQUA).

Q-Box sensors and analyzers are compatible with any data acquisition system you may already possess.

SOFTWARE FEATURES

- 4 Data Channels
- Variable Data Acquisition Rate
- Graph, Table and Meter Displays
- Suite of Analysis Functions: (Statistics, Curve Fit, Integration etc.)
- Control of Devices using Data Input.
- Multi-Page Reporting
- Data Replay Function
- Simple Equation Input and Editing
- Numerous Mathematical Functions
- Automated Calculations On-the-Fly
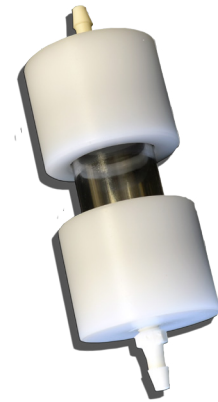
Mini Aqua Chamber

Liquid Pump

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