

aqua monitrix™

Real time remote monitoring
of water quality



Easy-to-use, early warning pollution
detection device for field use

TelLab 

TelLab is an Irish SME active in the applied chemistry area. An active R&D programme has been developed around the core operating divisions of Environmental analysis, Oil and Transformer oil analysis and the Manufacture of reagent chemicals. Aquamonitrix is an output from this research.

Technology

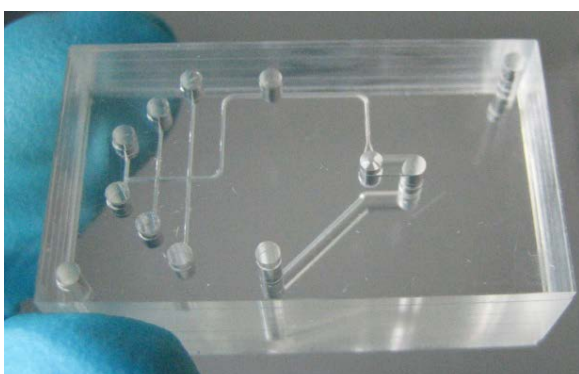
Aquamonitrix is a convenient, portable, deployable water monitoring device with surface water and industrial applications. Aquamonitrix measures pH, nitrate, nitrite, phosphate and ammonia simultaneously in real-time, with wireless remote monitoring.

This innovative autonomous microfluidic device can perform in-situ calibration and high frequency measurements over long deployment periods. Aquamonitrix has an inbuilt communication system and process control add-on which allows the user to monitor water quality remotely. These features give the user an immediate warning on the detection of a pollution event and will alert the relevant stakeholders, therefore enabling action to be taken to limit environmental damage.

TelLab are currently actively developing analysis techniques for further parameters for integration onto the Aquamonitrix device. These include conductivity, herbicides, pesticides, microbiological parameters and heavy metals. These will be available in the near future.

Key Benefits

- **Small size;** for wide ranging deployment applications.
- **Easy installation;** can be installed on site with no complex mechanical tasks.
- **Cost-effective;** compared to currently available applications.
- **Low maintenance costs, in-situ calibration and long deployment periods.**
- **Well validated chemistry** with all test methods compared to ISO17025 accredited techniques.
- **Versatile;** can be used in a wide range of matrices- freshwater and industrial applications. Also the suite of analytes detected by the device can be pre-chosen by the customer.
- **Process control,** to minimise pollution incidents.
- **Auto sampling capabilities,** triggered by changes in the level of analytes so that real-time samples may be collected for subsequent analysis in a laboratory. This will ensure the cause of any pollution incident can be fully investigated by full traditional laboratory techniques.
- **Wireless remote monitoring;** results and alerts can be sent to the user.



Microfluidic Chip



Applications



Industrial activities



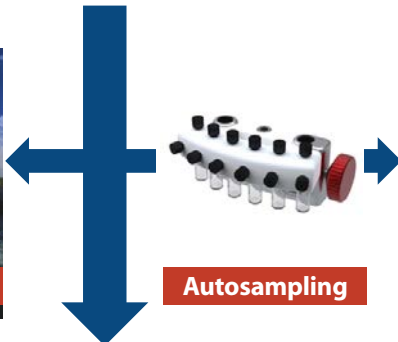
Wastewater treatment plants



Water bodies/streams/rivers/lakes



Process control

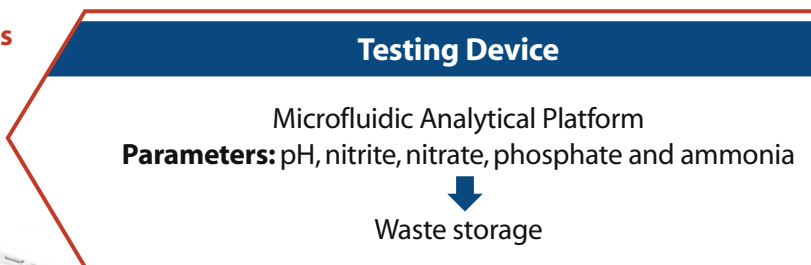


Autosampling



For further laboratory analysis

More parameters currently being developed for future easy integration onto the device



Results and/or alarm sent to user's smart phone or computer via system software



Technical Specification

Technology:

Microfluidic and Colorimetric Chemical Detection

Minimum Sampling Interval: 20 Minutes

Service Interval: 6 months

Calibration: Automatic Calibration

Linear Range:

Nitrite: 0.0015 - 1 mg/L

Nitrate: 0.01 - 75 mg/L

Phosphate: 0.01 - 20 mg/L

Ammonia: 0.015 - 12 mg/L

Limit of Detection:

Nitrite: 0.0015 mg/L

Nitrate: 0.01 mg/L

Phosphate: 0.01 mg/L

Ammonia: 0.015 mg/L NH₄⁺

pH Range: 4 - 9

pH Resolution: 0.1 pH units

Processor:

Texas Instruments CC2511F32

Memory:

Optional Micro SD memory slot

Memory and Communication options:

- Data logging to micro SD card
- Short range 2.4Ghz wireless radio (Typically 15m indoors)
- GSM
- Modbus SCADA interface

Physical:

Dimensions: 350x300x150 mm

Weight: 3.5 - 4.5 kg

Enclosure: IP 68 plastic

Mounting: Wall/Pole mounting

