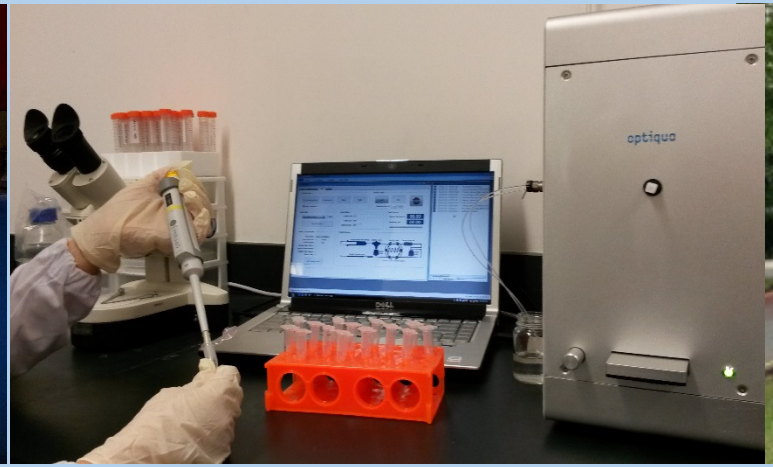
Waterlink Symposium

The case for real time water quality monitoring



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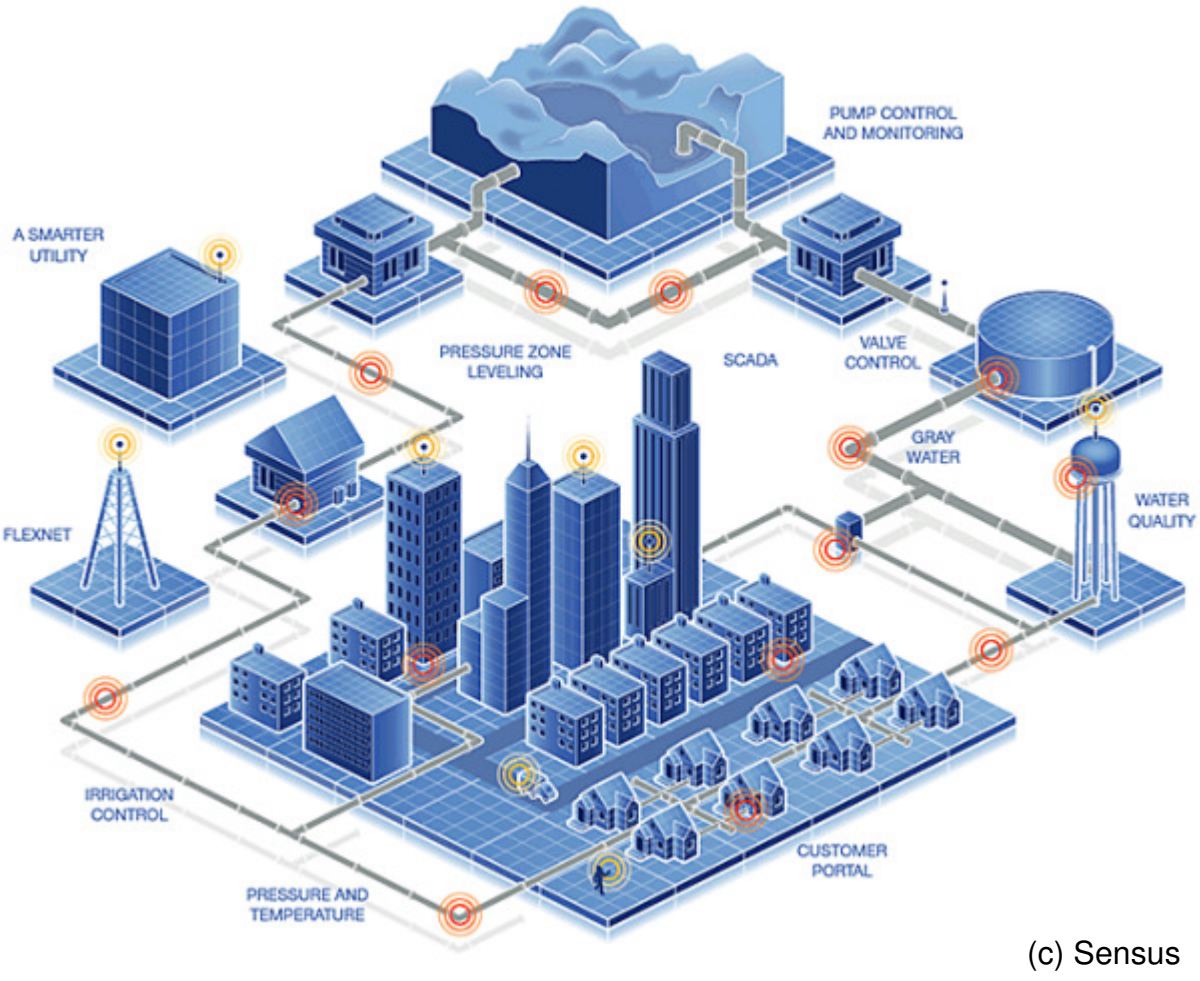
26 January 2017

Smart Water Systems



(c) Sensus

The Heart of Smart Water

Sensors

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Real time water quality monitoring makes a water network smarter

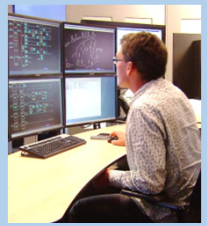
Early warning of water quality incidents

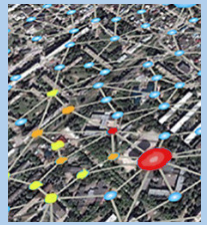
Continuous operational feedback on water quality

Enables utilities to improve understanding and control of

- Distribution process
- Infra-structure condition
- Treatment process

- Cost savings in multiple areas
- Lower operating risk
- Improved process stability
- Greater safety and security
- Improved customer satisfaction
- Higher level of regulator approval





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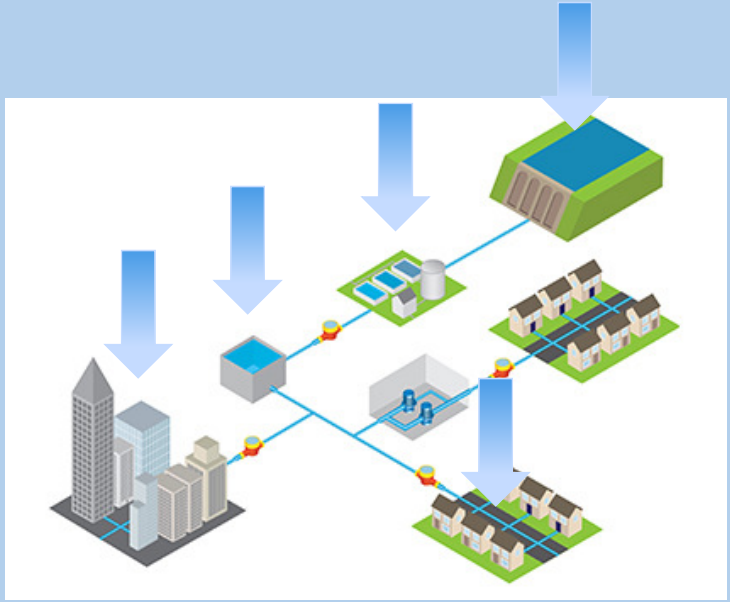
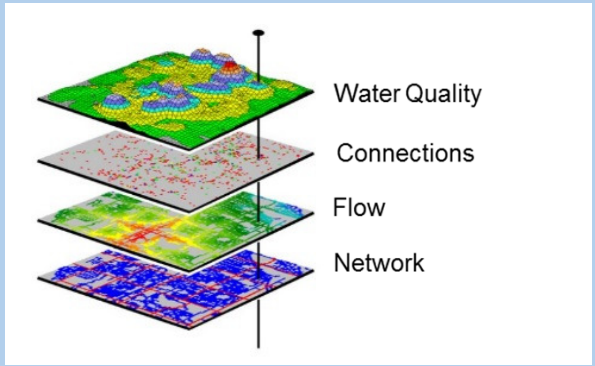
Water quality info based on traditional grab sampling is **“too little, too late”**

Requirement for data:

- Real time
- Covering the entire network
- Broad spectrum



WQ is one level of information
Integrated approach unlocks extra dimensions



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Smart Water Quality Module
- a piece of the puzzle -

- Sensor Hardware

- Data
  - Transmission and collection
  - Processing and interpretation

- Organisational integration
  - Technical
  - Cultural

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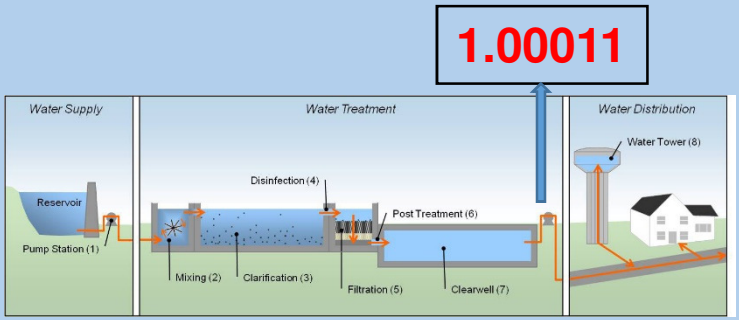
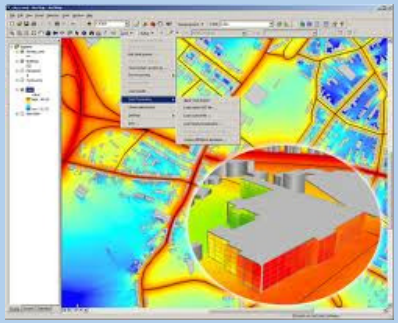
Monitoring strategies – changing visions





	“stand-alone modules”	“internet of water”
aim	concentration management	deviation management
objective	high precision & accuracy	rapid change detection
instrument	high-end (complex) sensors	cheap sensor nodes
purpose	• compliance monitoring • process control	• smart-grid applications • early warning detection
market	niche & commodity market sensors	mostly commodity market sensors
location	limited to specific locations	wide geographic spread

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Optiqua EventLab: complete solution for real time continuous water quality monitoring throughout the network

1

EventLab

- Optical
- Refractive Index
- Minimal maintenance
- Full spectrum detection
- No calibration
- ppm sensitivity

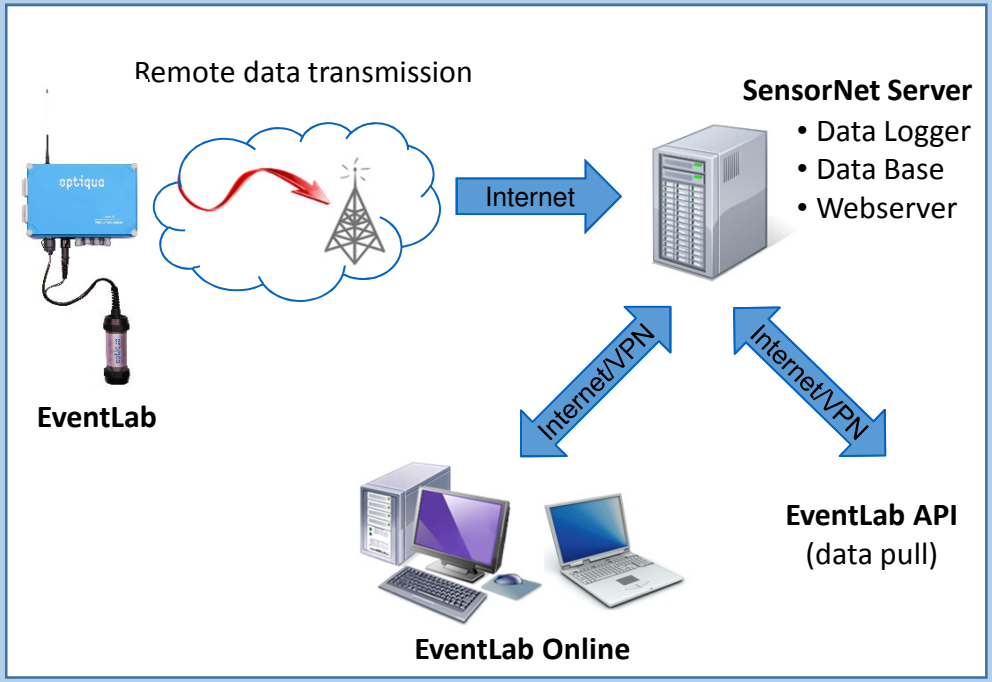
2

Data Transmission Infrastructure (GPRS/3G, SCADA)

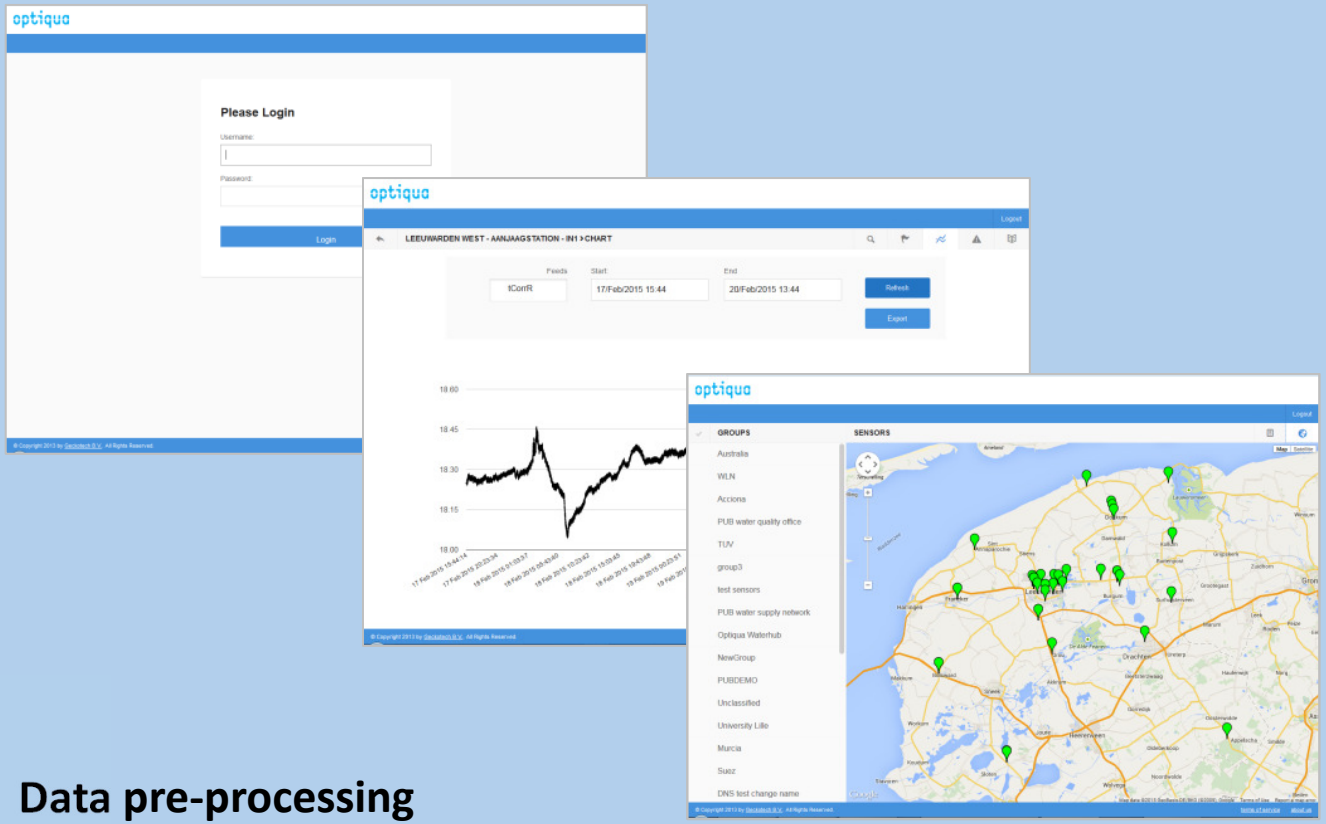
3

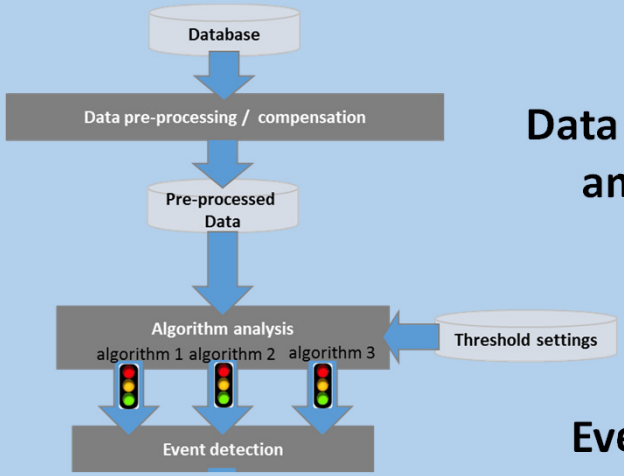
Central Server

- Data processing
- Algorithms detect variations and flag water quality incidents
- Web based user interface
- Network overview



Cloud based data analysis and dashboard





Data pre-processing and validation

Event Detection

Case Study: Vitens (the Netherlands)

Vitens is the largest water utility in the Netherlands providing drinking water to 5.4 million customers

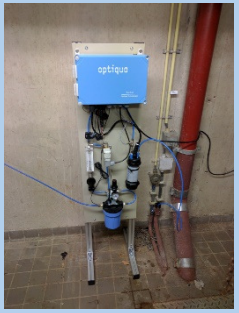
Intelligent water supply strategic focus. First implementation in Province of Friesland (7300 kilometers of pipes, 300,000 connections)

Network of 80 EventLab systems deployed

Production plant

Pumping stations / Reservoirs

End user points



"The Optiqua EventLab works and is reliable. The water company is now determining its roll-out plan."

In H2O vol 7/8, 2014 the Dutch magazine for water professionals

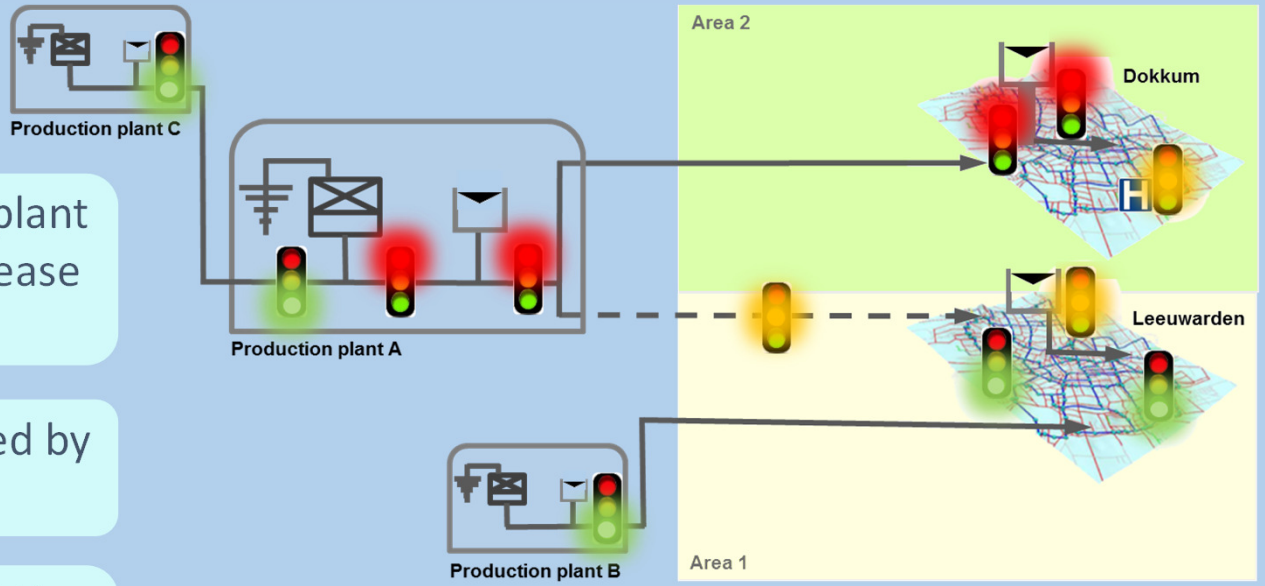
Case study shows how EventLab tracks water quality incidents throughout the Vitens network

Sequence of events that led to disruption of water production for 36 hours and water quality incident

Software issues at treatment plant after maintenance led to increase in water hardness

Incident was completely missed by traditional sensors

EventLab detected incident at the source and tracked it in real time through the network



Notification of critical customers

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Water Utilities are Catching On

- A growing number of smart water projects, including a water quality components, is observed.

State-of-the-Art summary

- Sensors are available

- Challenges at organisational level
- New way of looking at water quality
- Acceptance and support at all company levels
- Integration and communication

- Smart Water Solutions are being deployed, including water quality solutions

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Decision support tool for water quality sensors

Sensileau
Powered by Benten©

www.sensileau.info

- Information about commercially available online water quality sensor and monitors
- Case studies describe practical examples of utility experiences
- Improves the understanding of the advantages and disadvantages of technologies.
- Provides practical guidelines to help organize installation, maintenance and calibration.
- Helps utilities select fit-for-purpose equipment and make optimal use of instruments.

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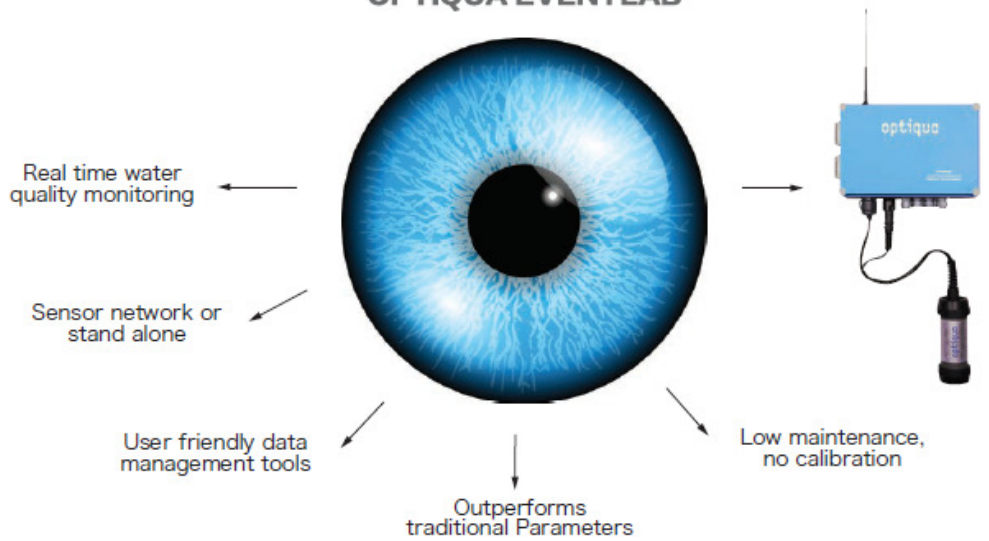
WE PROVIDE YOUR NETWORK WITH

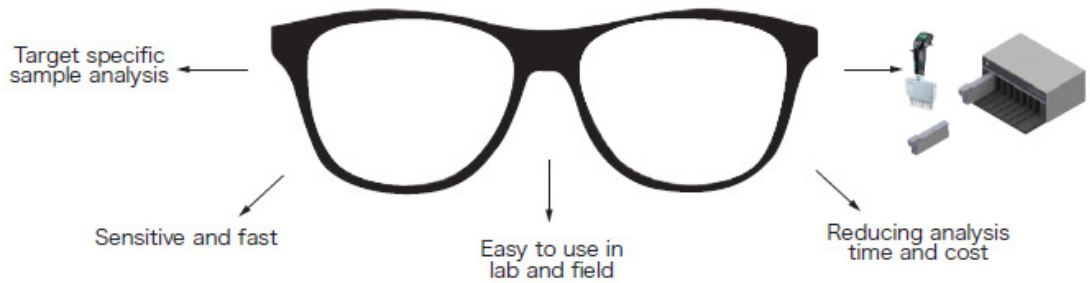
EYES

OPTIQUA EVENTLAB



AND GLASSES

OPTIQUA MINILAB



MONITORING WATER QUALITY www.optiqua.com