**Waterson offers real-time, AI-empowered water quality monitoring and early warning software to companies that rely on clean and uncontaminated water supply.**

The Waterson solution offers water utilities real-time control over drinking water quality, including automated monitoring, detection of contamination events, and cloud-based data analysis, providing proactive decision-making and reducing downtime and associated costs.

**Waterson benefits:**

* Provides real-time data on minute-by-minute changes in water quality, allowing for continuous assessment of the impact of operational processes on water quality. This creates opportunities to improve the water quality management and audit monitoring programs.
* Helps to facilitate proactive communication with drinking water consumers in cases of water quality deterioration, such as discolouration of water during firefighting events or repairment works of water distribution or treatment systems.
* Regular measurements enable the planning of service works based on real-time water quality instead of relying on calendar-based maintenance plans.
* Enables evaluation of the effectiveness of disinfection programs by assessing immediate changes in drinking water quality in real time.

Waterson Technologies can be useful for water utilities in a **variety of use cases**:

* **Monitoring Drinking Water Quality:** The Waterson system provides real-time monitoring of water quality, enabling utilities to quickly detect any changes in water quality and take corrective action before they develop into larger problems. The fluctuations in water quality that occur throughout the day, week, and season create opportunities to optimise water treatment and distribution processes, from the water treatment to the end-user.
* **Detection of Drinking Water Contamination:** The Waterson system is designed to detect contamination events in drinking water by monitoring five physicochemical water quality parameters, including turbidity, pH, conductivity, redox potential and temperature. Any changes detected by the system that indicate a potential contamination event can alert utilities to take quick action to protect public health.
* **Management of Drinking Water Infrastructure:** The Waterson system can be used to monitor the performance of water treatment and distribution infrastructure, such as pumps, valves, pipelines, pumping stations, etc. By monitoring physicochemical parameters, the system can detect changes that may indicate a problem with an infrastructure, enabling utilities to quickly identify and address any issues to reduce downtime and associated costs.

**Typical problem situations to use Waterson:**

* Repairs of water infrastructure
* Valve replacements
* Pipeline replacements
* Pump repairs
* Flushing of water distribution system
* Changes in operational mode
* Changes in chlorination process
* Non-typical changes in water consumption patterns
* Emergency repairs
* Interruption of water flow
* Flushing of filters
* Filter replacements
* Optimization of operational processes.

**What possibilities does the Waterson system provide to the end user?:**

* **Portable design** enables easy installation and mobility.
* **Plug and play functionality** ensures simple and quick setup.
* **Real-time dashboard** provides easy monitoring of water quality parameters.
* **Cloud-based data analysis** offers comprehensive insights and trends.
* **Real-time alert system** immediately notifies of any anomalies or issues.
* **Integrate SCADA** data with water quality measurements.

**Company contact details:**

Company: WATERSON TECHNOLOGIES OÜ

Legal Address: Estonia, Tallinn, Narva mnt 5, 10117

Registration nr.:16562214

VAT number: EE102533886.

EURO bank account:

Bank: Wise Europe SA

IBAN BE44 9673 6842 3645

Bank code (SWIFT/BIC) TRWIBEB1XXX

Address: Avenue Louise 54, Room S52, Brussels, 1050, Belgium

Company: WATERSON TECHNOLOGIES SIA

Legal Address: Ojāra Vācieša 7-1, LV1004, Riga, Latvia

Registration nr.: 50203398971

VAT number LV50203398971

Bank account (regular):

Bank: Luminor Bank AS

Luminor SWIFT: RIKOLV2X

Account nr. LV34RIKO0002930349608

Address: Skanstes 12, Riga, LV-1013, Latvia

Contact email: [info@waterson.lv](mailto:info@waterson.lv)

Contact person: Jānis Rubulis, [Janis@waterson.lv](mailto:Janis@waterson.lv), +371 29 43 80 18

Dāvids Štēbelis, [Davids@waterson.lv](mailto:Davids@waterson.lv), +371 29 19 56 26

**Waterson demonstrator**

The Waterson demonstrator is a cutting-edge prototype system that showcases the real-time monitoring capabilities of an integrated solution that collect data from multiple water quality sensors, including turbidity, conductivity, redox potential, pH, temperature, flow and pressure sensors. The system is designed to collect, process and record water quality data in a secure database. The system incorporates powerful AI algorithms that have been trained to identify drinking water intrusion incidents with high precision and accuracy making the Waterson demonstrator a powerful tool for water quality management and monitoring.

The system is designed for easy maintenance with replaceable sensors and automatic degassing valves, and is housed in an IP66-rated metal distribution box. It is easily transportable by a single person and designed for corrosion resistance without the need for welding. It also includes connectivity options and a 7-inch touchscreen display.

* Water parameter measuring devices - sensors for Flow, Pressure, Temperature, Turbidity, pH, ORP, and Conductivity are included in the system.
* All sensors are easily accessible for maintenance and are positioned according to the manufacturer's guidelines.
* Sensors are connected using union type fittings, which can be easily replaced without the use of tools.
* Automatic degassing valves are included in the system to prevent air bubbles from getting trapped.
* The system is designed for easy indoor transportation, with dimensions less than an Euro-pallet (800x1200mm) and can be moved by a single person. It can also overcome small obstacles (H15xW50mm) during indoor transportation.
* PVC or stainless-steel pipes, fittings, and valves are used in the construction.
* The system is equipped with GSM, Wi-Fi, and LAN connectivity, and an external GSM/Wi-Fi antenna.
* It can be powered from a 1x 230V AC, 50Hz power outlet.
* A 7-inch touchscreen display is included in the system.

AI Software Overview: The algorithm is based on multilayer artificial neural networks and is trained on labeled data using the Back-propagation algorithm. The algorithm uses standardized sensor readings for temperature, turbidity, pH, ORP, and conductivity as inputs, and predicts the probability of contamination as a combination of all readings.

**Waterson demonstrator sensor specifications:**

## Flow sensor E+H Picomag DMA25 IO-Link

* Maximum measured error: ±0.8 % o.r.±0.2 % o.f.s
* Ambient temperature range: –10 to +60 °C (+14 to +140 °F)
* Storage temperature: –25 to +85 °C (–13 to +185 °F)
* Degree of protection: IP65/67, pollution degree 3
* Humidity and moisture: Suitable for indoor environments with up to 100% rh (wet and damp locations)
* Operating altitude: up to 2000 m
* Shock resistance: 20 g (11 ms) in accordance with IEC/EN60068-2-27
* Medium temperature range: –10 to +70 °C (+14 to +158 °F) Permissible short-term temperature, maximum one hour: 85 °C (185 °F)
* Medium properties: Liquid, conductivity > 10 µS/cm
* Pressure Max. 16 bar
* Measuring range: 0.2 to 100 l/min (0.052 to 26.4 gal/min)

## Pressure sensor E+H Cerabar PMP11

* Minimum pressure –1
* Maximum pressure +16
* Ambient temperature range: –40 to +70 °C (–40 to +158 °F)
* Storage temperature range: –40 to +85 °C (–40 to +185 °F)
* Process temperature range: –25 to +85 °C (–13 to +185 °F)
* Relative humidity: 4 to 95 %

## Temperature sensor E+H Viomax CAS51D

* Application: Clear water, drinking water
* Ambient temperature range: –20 to 60 °C (–4 to 140 °F)
* Storage temperature: –20 to 70 °C (–4 to 158 °F)
* Degree of protection IP 68 (1 m (3.3 ft) water column, 60 days, 1 mol/l KCl)
* Process temperature range 5 to 50 °C (41 to 122 °F)
* Process pressure range 0.5 to 10 bar (7.3 to 145 psi) (abs.)

## Turbidity sensor E+H Turbimax CUS52D

* Measuring range: 0.000 to 4000 FNU
* Maximum measured error: 2 % of the measured value or 0.01 FNU
* Ambient temperature range: –20 to 60 °C (–4 to 140 °F)
* Storage temperature –20 to 70 °C (–4 to 158 °F)
* Degree of protection: IP 68 (1.8 m (5.91 ft) water column over 20 days, 1 mol/l KCl)
* Process temperature range: –20 to 85 °C (–4 to 185 °F)
* Process pressure range: 0.5 to 10 bar (7.3 to 145 psi) (abs.)

## pH sensor E+H Orbisint CPS11D

* Storage temperature: 0 to 50 °C (32 to 122 °F)
* Degree of protection: IP 68
* Process temperature range: –15 to 80 °C (5 to 176 °F)
* Process pressure range: 1 to 7 bar (14.5 to 101.5 psi) (absolute)
* Conductivity: 50 μS/cm minimum (minimized flow; pressure and temperature must be stable)
* Measuring range: pH: 1 to 12

## ORP sensor E+H Orbisint CPS12D

* Ambient temperature: Do not use the electrode at temperatures below -15 °C / 5 °F
* Storage temperature: 0 ... 50 °C / 32 ... 122 °F
* Ingress protection: IP 68: Memosens plug-in head (10 m / 32.8 ft water column, 25 °C /77 °F, 45 days, 1 M KCl)
* Process temperature: -15 ... 135 °C / 5 ... 275 °F
* Process pressure: 0 ... 16 bar / 0 ... 232 psi
* Measuring range: -1500 ... 1500 mV

## Electric conductivity sensor E+H Condumax CLS21D

* Measuring range: 10 μS/cm to 20 mS/cm
* Maximum measured error: 5% of reading
* Ambient temperature: –20 to 60 °C (–4 to 140 °F)
* Storage temperature: -25 to +80 °C (-10 to +180 °F)
* Degree of protection: IP 68 / NEMA type 6P (1 m water column, 25 °C, 24 h)
* Process temperature: -20 to 135 °C (-4 to 275 °F) at 3.5 bar (50 psi) absolute
* Process pressure: CLS21D 17 bar (246 psi) absolute, at 20 °C (68 °F)