

# Meeting water quality standards – the role of turbidimeters

*In the UK, all drinking water must be safe and have the trust of consumers. An integral part of this is to ensure tap water meets strict standards laid out in the EU drinking water directive and prescribed in our local legislation, both of which follow World Health Organisation (WHO) guidelines.*



Improved water quality is being demanded by regulators with the public and utilities facing an increasingly challenging and changing climate. The challenge is to mitigate these emerging risks, continue to improve drinking water without the cost being passed onto consumers.

Accurate and rigorous assessments of quality have a huge role to play in meeting this challenge and one of the key measures of water quality is turbidity. If water looks turbid, it may not only look unpalatable, but may also contain other harmful material.

Low turbidity following pre-treatment is a prerequisite to effective disinfection and essential to ensure consumer confidence is maintained. As well as meeting parametric standards, water suppliers must ensure tap water is 'wholesome', i.e. it looks good, tastes good and doesn't do you any harm.

## Measuring turbidity

Turbidity has traditionally been measured using contact turbidimeters, nephelometry-based instruments, which measure how light is scattered by the particles at an angle of 90° to the incident beam.

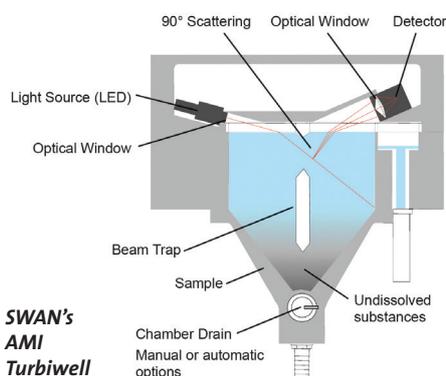
The reliability of some instruments has proven problematic, with contamination a repeated issue, increasing maintenance costs and downtime. Typically, the optics require cleaning, the light sources, and other components, would need to be replaced, and the instruments recalibrated at regular intervals.

## Turbidimeters – a new approach

A turbidimeter new to the UK market is addressing these concerns. SWAN's AMI Turbiwell is a single beam turbidimeter, distinct from others, as it is a non-contact system, meaning it avoids the shortcomings of more traditional instruments.

## Benefits of SWAN's non-contact turbidimeter

SWAN's AMI Turbiwell is easy to install, comprising of a complete, panel mounted system; tested, calibrated and ready for operation, minimising downtime and disruption during installation.



**SWAN's AMI Turbiwell**

## A resilient design

A number of features underpin the instrument's reliability, including the unique sample chamber design.

Extremely durable; at no point are the optics in direct contact with the water, so the likelihood of contamination is significantly lower.

Condensation is prevented due to the naturally heated optics, therefore reducing maintenance and negating the need for drying agents.

Whilst the drain ensures the measurement chamber is cleared of settled particles when checking and/or verifying the unit.

## Robust Electronics

Incorporating long-lasting components, like the LED, with a lifetime of over 100,000 operating hours and a photodiode that monitors the LED's performance, thus the need for replacement is unnecessary and recalibration negated. As the instrument incorporates no moving parts, the Turbiwell is particularly robust.

## Quality Assurance

The fully integrated flow monitoring system ensures quality assurance of the sample flow is maintained at all times.

Optionally, a degassing unit ensures the samples are uniform and non-gaseous, so measurements are accurate, and false positive readings avoided.

## Off the beaten track?

Remote, unstaffed sites particularly benefit from this tough, easy to install, low maintenance, low-flow system, as it minimises the time and frequency with which staff have to be onsite.

## Reduced maintenance

All in all, the unique non-contact design and components that endure, mean maintenance costs, downtime and disruption are vastly reduced, operations run more smoothly, and operation costs are kept to a minimum.

In short, SWAN's AMI Turbiwell is a non-contact turbidimeter for the automatic and continuous measurement of turbidity in drinking water, as well as, surface and waste water, meeting the requirements of ISO 7027.

## Put through its paces

SWAN's AMI Turbiwell is now the turbidimeter of choice for South West Water and their suppliers, after undergoing rigorous testing, alongside their competitors, over an 18-month period.

To date, over 120 units have been installed for the water and wastewater service provider supplier, benefiting their circa 1.7million customers

## South West Water's Head of Water Quality, Chris Rockey said:

"In recent years we have been focussed on finding a reliable low maintenance, low level turbidity meter to verify disinfection conditions and assure optimised pre-treatment. Our goals also included the need for an accurate and easily verifiable measurement. Following extensive trials, we determined the Turbiwell best suited our needs in this situation and we have recently extended its use into other low-level applications such as monitoring trunk main conditioning schemes. We have worked closely with SWAN and appreciate their approach to developing their instrumentation to meet our local needs. The provision of a pre-assembled, pre-tested instrument and the approach to instrument quality control are two examples of how we have benefitted from the collaboration; the latter is increasingly important as we now rely on these measurements so heavily to ensure our consumers can trust their tap water."

**For a turbidimeter that is straightforward to use, provides reliable data and needs minimal maintenance install SWAN's AMI Turbiwell.**

## Contact SWAN Analytical.

To discuss your requirements and to find out more about SWAN's AMI Turbiwell call **01780 755 500** or email **sales@SWAN-analytical.co.uk**

SWAN sets the standard for the analysis and control of many Water Quality parameters such as Disinfectants, pH, Redox, Turbidity, Organics, Ammonium/Nitrate, Conductivity and Dissolved Oxygen. Every sensor and every instrument has been produced at SWAN's headquarters and each step, from the machine part to the final assembly, undergoes rigorous and severe quality control procedures so that no instrument leaves the company without final testing under real conditions. SWAN instruments are delivered as fully functional, ready-to-use instruments which ensures easy system integration as well as user-friendly operation and maintainability.



AMI SAC254

Measurement of UV absorption at 254nm (SAC<sub>254</sub>) for monitoring of organic contamination

- ▶ Dynamic measuring method: insensitive to fouling with wide measuring range
- ▶ Integrated grab sample function
- ▶ Correlation with DOC, TOC and other related parameters possible
- ▶ Integrated turbidity correction at 550 nm per DIN 38404 - 3
- ▶ For more information visit the SAC254 website: <https://sac254.swan.ch>

AMI Turbiwell

Contact-free turbidity measurement, approved alternative method to US EPA 180.1/ISO 7027

- ▶ Heated optics prevent measurement errors and fouling from condensation
- ▶ No consumables, no wearing parts, no follow-up costs
- ▶ Automatic measuring chamber flushing; trouble-free operation without manual intervention
- ▶ Fast and easy verification with primary and secondary standard

AMI Trides

Amperometric measurement and control system for disinfectant concentrations

- ▶ Reagent-free – low operating costs with durable, membrane-free sensor design
- ▶ Low maintenance high zero-point stability, improved longevity with automatic sensor cleaning
- ▶ Reliable measurements with integrated monitoring of Redox Potential or pH Value (incl. compensation)

To discuss your requirements in more detail get in touch with our sales team on 01780 750 500 or [sales@swan-analytical.co.uk](mailto:sales@swan-analytical.co.uk)

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