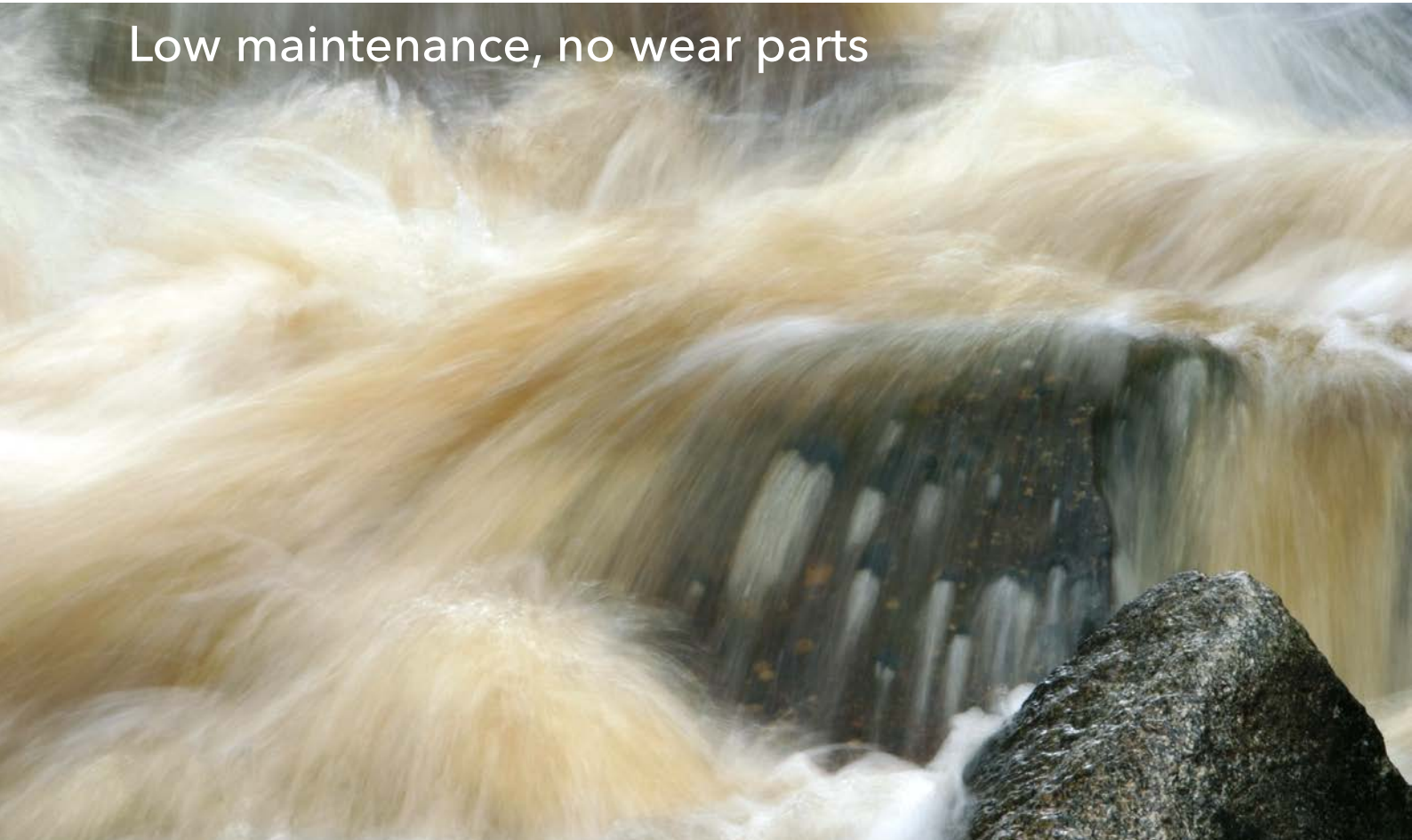


# Turbidity / Suspended Solids

Low maintenance, no wear parts



## Turbidity

For people, turbidity of water is highly comprehensible. For most persons, turbid water is nasty or even repellent. Smell, taste and turbidity are the most important indicators for the quality of potable water. Turbidity is typically determined using 90 degree scattered light principle in compliance with EN ISO 7027.

### Fields of application:

- Outlet of wastewater treatment plants
- Sludge concentration
- Monitoring/Controlling of sludge cycle
- Drinking water
- Surface water

# Suspended Solids (TS)

The concentration of suspended solids is a very important process parameter for today's sludge treatment. A continuous gravimetric analysis is not possible in wastewater treatment process - therefore on-line methods are used. Total suspended solids can be determined on-line using scattered light or light absorbance.

Under normal conditions there is a good correlation to gravimetric analysis. However, sludges can be totally different - concerning coloration, particle size and structure. Therefore of course a "multi-point" user calibration is possible. This can also be done with the mandatory required gravimetric determination of total suspended solids.

## Cleaning System

The fouling of the optical path requires an effective cleaning system realized by WTW using a unique Ultrasonic System. This ultrasonic module, integrated in the VisoTurb® 700 IQ and in the ViSolid® 700 IQ, causes a permanent oscillation on the optical windows avoiding biological fouling. Pictures (right) show the same sensor with ultrasonic cleaning system switched-off and switched-on in a typical wastewater application.

The sensor with a switched off ultrasonic cleaning (upper picture) is totally covered with organic deposits after 16 days. The sensor with switched on ultrasonic cleaning (below) doesn't show any negative impact.

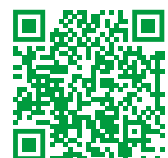
Likewise, the IQ spectral sensors provide the integrated ultrasonic cleaning.



ViSolid® 700 IQ with switched-off cleaning system is completely covered with a biological layer after 16 days.



ViSolid® 700 IQ with working ultrasonic cleaning system shows no adverse effect.



see also <https://www.xylymanalytics.com/en/parameters/turbidity-and-tss>

# Turbidity Sensor VisoTurb®

The VisoTurb® is ideal to monitor turbidity, for example in the outlet of a wastewater treatment plant. The unique integrated ultrasonic cleaning system ensures low-maintenance and continuously reliable measuring. By this, whether spare nor wear parts are needed.

With the nephelometric measuring principle, the scattered light is measured at a 90° angle. The measuring setup is suitable for low and medium turbidity values up to 4000 FNU. The sensor works according to EN ISO 7027.



VisoTurb® 700 IQ



- Ultrasonic cleaning without wear or spare parts
- Extremely low maintenance
- Highly accurate factory calibration
- High operational safety (SensorCheck function)



## Digital

To be connected to the digital, modular, and expandable IQ SENSOR NET as well as to the single parameter controller 181.



### VisoTurb® 700 IQ

for the IQ SENSOR NET



### VisoTurb® 700 IQ SW

for use in corrosive media



### VisoTurb® 700 IQ F

fixed cable model for IQ SENSOR NET system 181



## Ordering Information

Model	Description	Order No.
<b>VisoTurb® 700 IQ</b>	Digital turbidity sensor with integrated ultrasonic cleaning	600010
<b>VisoTurb® 700 IQ SW</b>	Like VisoTurb®700 IQ, but as a sea water model	600011
<b>VisoTurb® 700 IQ F</b>	Like VisoTurb®700 IQ, but to be connected to DIQ/S 181(24 V), with fixed cable	600007



For technical data please see datasheets D2.05 and D2.23

Alternatives and accessories see brochure "Product Details" and website

Information about IQ SENSOR NET system see from page 42

Sensors for suspended solids measurement see from page 23

# Suspended Solids Sensor ViSolid®

The unique integrated ultrasonic cleaning system ensures low-maintenance and continuously reliable measuring. By this, whether spare nor wear parts are needed.

The sensor uses two methods, which are selected depending on the total suspended solids concentration. At low concentrations, scattered light is measured. At higher concentrations, the direct back scattering provides optimal results.



ViSolid® 700 IQ

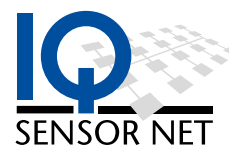


- Ultrasonic cleaning without wear or spare parts
- Extremely low maintenance
- Highly accurate factory calibration
- High operational safety (SensorCheck function)



## Digital

To be connected to the digital, modular, and expandable IQ SENSOR NET.



### ViSolid® 700 IQ

for the IQ SENSOR NET



### ViSolid® 700 IQ SW

for use in corrosive media



## Ordering Information

Model	Description	Order No.
ViSolid®700 IQ	Digital suspended solids sensor with integrated ultrasonic cleaning	600012
ViSolid®700 IQ SW	Like ViSolid®700 IQ, but as a sea water model	600013



For technical data please see datasheet D2.06

Alternatives and accessories see brochure "Product Details" and website

Information about IQ SENSOR NET system see from page 42

UV-VIS spectral sensors for TSS measurement see from page 30

# UV-VIS Spectral Sensors

With spectral sensors (wavelengths 200-720 nm) TSS, Nitrate as well as additional carbon parameters can be measured (COD, BOD, TOC, DOC, SAC).

The following WTW spectral sensors are optimized for municipal wastewater application:

NitraVis® 701 IQ TS	for inlet and aeration	from page 30
NitraVis® 705 IQ TS	for effluent	from page 30
NiCaVis® 705 IQ TS	for effluent	from page 30
CarboVis® 701 IQ TS	for inlet and aeration	from page 34
CarboVis® 705 IQ TS	for effluent	from page 34

The following WTW spectral sensors are designed for monitoring of surface water:

NiCaVis® 705 IQ SF	for e.g. rivers and lakes	from page 30
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# Analyzer for Turbidity

## Turb 2000 Series



### For Turbidity Monitoring in Drinking Water

The nephelometric turbidity measuring is offered with or without ultrasonic cleaning of the flow cuvette.

Selection between measuring according to EN ISO 7027 with infrared light or US EPA 180.1 with white light.

- Easy calibration
- Integrated bubble trap
- Automatic cleaning
- Reliable system



### Turb 2000

white light,  
without ultrasonic cleaning

### Turb 2020

white light,  
with ultrasonic cleaning

### Turb 2100

infrared light,  
without ultrasonic cleaning

### Turb 2120

infrared light,  
with ultrasonic cleaning

### Turb 2110

infrared light, without ultrasonic cleaning, low measuring range



Turb 2120

### Turb 2110 Set

infrared light, without ultrasonic cleaning, low measuring range, additional bubble trap

## Ordering Information

Model	Description	Order No.
<b>TURB 2000</b>	Online turbidity meter, with white light and integrated bubble trap; nephelometric measurement specified according to US EPA 180.1, 110-240 VAC	600020
<b>TURB 2020</b>	Like TURB 2000, but with ultrasonic cleaning	600025
<b>TURB 2100</b>	Like TURB 2000, but with infrared light; specified according to EN ISO 7027	600030
<b>TURB 2120</b>	Like TURB 2000, but with infrared light and ultrasonic cleaning; specified according to EN ISO 7027	600035
<b>TURB 2110</b>	Like TURB 2000, but with infrared light; specified according to EN ISO 7027; Measuring range 0-10 FNU/NTU ( $\pm 2\% / 0,02$ NTU) only when using Kal Kit Turb 2110/DW; with integrated cuvette and hoses.	600033
<b>TURB 2110 Set</b>	Turb 2110 as set with: additional Bubble trap; standards in reusable cuvettes	600032



For technical data please see datasheet D7.02

Alternatives and accessories see brochure "Product Details" and website

Pre-mounted panels für turbidity measurement see from page 58

Analyzer for chlorine see from page 41