Process Instrumentation

D.O. · pH/ORP · CONDUCTIVITY · TURBIDITY/TSS · NH₄/NO₂/NO₃ · COD/BOD/TOC/DOC/SAC/UVT · PHOSPHATE · SLUDGE LEVEL · CHLORINE · COLOR
IQ SENSOR NET –
the System for Wastewater Treatment Plants,
Industrial Applications and much more

1. IQ Sensor Network: System 2020

Inlet:
- pH, Cond, Ammonium, Nitrate, COD/TOC/DOC/BOD/SAC

Outlet:
- Ammonium, Nitrate, Nitrite, pH, Cond, Turbidity, COD/TOC/DOC/BOD/SAC, UVT, Phosphate, Color

Aeration, Micropollutant Removal, Deammonification:
- D.O., Ammonium, Nitrate, Nitrite, SAC, UVT, TSS, pH, Phosphate

Portable Display TC 20203G

Outstanding among the compact Controllers:
System 282/284

The Single Parameter Measuring Point:
System 281

2. Outstanding among the compact Controllers:
System 282/284

see from page 58

3. The Single Parameter Measuring Point:
System 281

see from page 60

Oxygen measurement with FDO® 700 IQ
- Calibration free sensor
- Reduces energy and operational costs
- Long lifetime of membrane cap
- Precise results without drift

Ammonium & Nitrate measurement with ISE sensors (e.g. VARiON® Plus 700 IQ)
- Easy and fast matrix adjustment
- Up to 2,000 mg/l NH₄
- Extremely robust electrodes
- Compensation with K and Cl

Reagent-free COD measurement with NiCaVis® 701/705 IQ NI
- No reagent consumption
- Integrated ultrasonic cleaning
- Extremely low in maintenance
- No wear parts
- Additionally BOD, TOC, DOC, SAC, UV, Nitrate and Nitrite
### All measurement parameters at a glance

| Sensors                  | TriOxmatic® 700 IQ | FDO® 700/701 IQ | SensoLyte® 700 IQ | TetraCon® 700 IQ | VisoLyte® 700 IQ | Ammonolyte® 700 IQ | NitraLyte® 700 IQ | VARiON® 700 IQ | NitroVis® 701/705 IQ (TS) | NitroVis® 701/705 IQ (NI) | NitraVis® 701/705 IQ (TS/TSF/Co) | NipaVis® 701/705 IQ (NI) | UV 701/705 IQ (TSF/Co) | UV 701/705 IQ (NI) | IFL 700 IQ | Alyza IQ PO4 | Alyza IQ NH4 | ColorVis 705 IQ |
|--------------------------|--------------------|----------------|-------------------|-----------------|-----------------|-------------------|-----------------|---------------|---------------------------|---------------------------|-----------------------------|--------------------------|--------------------------|-----------------|-------------|-------------|-------------|
| Usable with System 2020  | ■                  | ■              | ■                 | ■               | ■               | ■                 | ■               | ■             | ■                         | ■                         | ■                           | ■                        | ■                        | ■               | ■           | ■           | ■           |
| Usable with System 282/284 | ■                  | ■■             | ■■               | ■■             | ■■             | ■■               | ■■             | ■■            | ■■                        | ■■                        | ■■                          | ■■                       | ■■                       | ■■             | ■■          | ■■          | ■■          |
| Usable with System 281   | ■                  | ■             | ■                 | ■               | ■               | ■                 | ■               | ■             | ■                         | ■                         | ■                           | ■                        | ■                        | ■               | ■           | ■           | ■           |
| Power consumption [W]    | 0,2                | 0,7           | 0,2              | 1,5            | 1,5            | 0,2              | 0,2            | 8,0°          | 8,0°                      | 8,0°                      | 8,0°                        | 8,0°                     | 8,0°                     | 8,0°          | 5,5°        | 8,0°        |

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* When operating with System 282/284, the average power consumption can be used. Details see operating manual System 282/284.

† Nitrite and Nitrate are included in the measured value.
## Systems in Detail

### Module

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<th>Module</th>
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<th>MIQ/24V</th>
<th>MIQ/C6</th>
<th>MIQ/R6</th>
<th>MIQ/CR3</th>
<th>MIQ/C2</th>
<th>MIQ/3-MOD</th>
<th>MIQ/3-PR</th>
<th>MIQ/JB</th>
<th>MIQ/JBR</th>
<th>MIQ/IC2</th>
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<th>MIQ/3-PR</th>
<th>MIQ/JB</th>
<th>MIQ/JBR</th>
<th>MIQ/CHV PLUS</th>
<th>Cleaning Air Box - 230 VAC</th>
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### Module features

#### Power supply

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** Power delivery: MIQ/PS and MIQ/24V provide 18 W each
*** Integrated power supply
✘ USB interface only for software updates
WTW
a Brand, rich in Tradition

Since 2011, WTW is part of the Xylem Group, which operates worldwide in its core business of water. As a brand of Xylem Analytics Germany GmbH and being rich in tradition, we see our task in using our expertise and innovative technologies to find solutions for our customer’s measurement tasks.

For many years the IQ Sensor Net has been a technology leader in wastewater quality measurement. It can be used both as single on-site measurement and in a network. The innovative digital sensors represent the heart of the system. As a result the IQ Sensor Net is the most flexible digital multi-parameter system for up to 20 sensors.

With the new MIQ/MC3 controller family with integrated USB and LAN interfaces, the IQ Sensor Net System can be connected to internet communication via TCP/IP technology. The new Analyzer family Alyza IQ augments the System with wet chemical analyzers for the measurement of orthophosphate. They provide extremely low reagent consumption and produce very small amounts of waste.

This as well as our entire product portfolio of process instrumentation can be found on the following pages. If you need any information or solution on laboratory equipment of the brand WTW or other Xylem brands, don’t hesitate to contact us or take a look on our new website www.xylemanalytics.com.

With more than 70 years of experience, the WTW brand has established a first-class reputation through its exemplary customer-support. Our Customer Care Center is ready to find an individual solution for any customer’s measurement tasks. WTW’s comprehensive application collection, in combination with expert application specialists, ensures fast solutions for technical challenges. The dealer and service network extends around the world.

As it always has been the largest percentage of our products are produced at our facility in Weilheim in Upper Bavaria, south of Munich, by nearly 400 employees – quality-measurement technology with expert support, “Made in Germany”.

You can find out more about Xylem on our website: www.xyleminc.com
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These test marks indicate that the national safety standards applicable in the USA and Canada have been complied with.

Our certification partners, UL (Underwriter Laboratories) and ITS (Intertek Testing Services), are officially authorized testing centers in both countries.

Warranty for perfect operation of instruments supplied by us.

Faults resulting from natural wear and tear, improper use/handling, or from alterations/repairs carried out by the customer or third parties to the items supplied are excluded from this warranty.

Reference to Data sheets at the end of the catalog or separately available.

IP Code (International Protection Code)
Protection types acc. to DIN EN 60529

1st number:
- instrument protected against entry of solid bodies
- 0 not protected
- 1 with Ø ≥ 50 mm
- 2 with Ø ≥ 12 mm
- 3 with Ø ≥ 2.5 mm
- 4 with Ø ≥ 1.0 mm
- 5 dust protected*
- 6 dustproof

2nd number:
- protection against water
- 0 not protected
- 1 vertically falling drops
- 2 drops of water at angles of up to 15° to vertical
- 3 drops of water at angles of up to 60° to vertical
- 4 splashes from any direction
- 5 jets of water from any direction
- 6 strong jets of water from any direction
- 7 intermittent submission (max. 1 m deep, 30 min)
- 8 permanent submission

* limited amounts of dust may enter under certain conditions

If numbers 7 and 8 are fulfilled this does not necessarily mean that numbers 5 or 6 are also fulfilled.

This test mark indicates that the product complies with the applicable EU and UK directives.

For WTW products these are essentially:

CE: Directive 2014/35/EU
UK: Electrical Equipment (Safety) Regulations 2016
- Electrical equipment for use within particular voltage limits (low-voltage directive/product safety)

CE: Directive 2014/30/EU
UK: Electromagnetic Compatibility Regulations 2016
- Electromagnetic compatibility (EMC directive)

CE: Directive 2011/65/EU
UK: The restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012
- Restriction Of Hazardous Substances (ROHS)

CE: Directive 2014/53/EU
UK: Radio Equipment Regulations 2017
- Radio Equipment Directive (RED)
Typical Applications

Process Instrumentation

Wastewater (municipal wastewater)

see also www.xylemanalytics.com/en/applications/wastewater

WASTEWATER TREATMENT

Inlet
- pH: SensoLyt® 700 IQ
- Conductivity: TetraCon® 700 IQ

Pre-Sedimentation
- Inlet
- Storm water reservoir
- Pumping station
- Oil / sand catcher

Biology
- Bio-P Nitrification
- Bio-P Denitrification
- Partial nitritation
- Anaerobic ammonium oxidation

Micropollutant Removal
- Sludge Precipitation
- Simultaneous Precipitation Dosage
- Post Sedimentation tank
- Option a): Activated carbon
- Option b): Ozonation

Effluent
- pH: SensoLyt® 700 IQ
- Conductivity: TetraCon® 700 IQ

SLUDGE TREATMENT

Sedimentation
- TSS: ViSolid® 700 IQ
- pH: SensoLyt® 700 IQ
- D.O.: FDO® 700 IQ

Deammonification
- pH: SensoLyt® 700 IQ
- D.O.: FDO® 700 IQ

Typical Applications

Process Instrumentation

- Wastewater (municipal wastewater)
- Biological Cleaning (Aeration)
- Sedimentation
- Effluent

Typical Applications

Process Instrumentation

- Wastewater (municipal wastewater)
- Biological Cleaning (Aeration)
- Sedimentation
- Effluent

Typical Applications

Process Instrumentation

- Wastewater (municipal wastewater)
- Biological Cleaning (Aeration)
- Sedimentation
- Effluent
Typical Applications

**Process Instrumentation**

### Drinking Water

*see also [www.xylemanalytics.com/en/applications/drinking-water](http://www.xylemanalytics.com/en/applications/drinking-water)*

#### Raw water

- **(Groundwater, Surface waters)**
  - **pH:** SensoLyt® DW (A) page 16
  - **Conductivity:** TetraCon® ML 70 page 17
  - **Turbidity:** VisoTurb® 700 IQ page 24
  - **Turb PLUS 2000** page 27

#### Pretreatment

- **(Precipitation, Flocculation, Sedimentation)**
  - **Turbidity:** VisoTurb® 700 IQ page 24
  - **Turb PLUS 2000** page 27
  - **SAC:** UV 705 IQ SAC page 32

#### Filtration

- **(Matrix filter, Membrane filter, Activated Carbon)**
  - **Turbidity:** VisoTurb® 700 IQ page 24
  - **Turb PLUS 2000** page 27

#### Oxidation/Disinfection

- **(Chlorination, Ozonation, UV treatment, iron and manganese removal)**
  - **Chlorine:** Chlorine 3017M page 49
  - **FCML 412 N** page 49
  - **UV:** UV 705 IQ SAC page 32
  - **Turbidity:** Turb PLUS 2000 page 27
  - **pH:** SensoLyt® DW (A) page 16
  - **SenTix® ML 70** page 17

#### Outlet & Network monitoring

- **Turbidity:** Turb PLUS 2000 page 27
  - **ORP:** SensoLyt® Pt (A) page 16
  - **SenTix® ML ORP** page 17
  - **Oxygen:** FDO® 700 IQ page 11
  - **Chlorine:** Chlorine 3017M page 49
  - **FCML 412 N** page 49
  - **Temperature:** available in several other sensors
Typical Applications

Process Instrumentation

Industry

The IQ SENSOR NET can further be used for different industrial applications. Please consider the application range of our sensors, e.g. pH, temperature, corrosion or resistance. Given lifetimes and accuracies might differ due to the specific composition of the measured media.

IQ SENSOR NET from page 50
IQ Sensors from page 10
IQ Sensors (corrosion resistant SW versions) from page 11

Water

For the continuous monitoring of surface water Xylem Analytics Germany offers the IQ SENSOR NET with its standard IQ sensors and especially developed reagent free spectral probes (SF versions).

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Sensor Model</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH</td>
<td>SensoLyte® 700 IQ</td>
<td>15</td>
</tr>
<tr>
<td>Conductivity</td>
<td>TetraCon® 700 IQ</td>
<td>20</td>
</tr>
<tr>
<td>D.O.</td>
<td>FDO® 700 IQ</td>
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<tr>
<td>TriOxmatic® 700 IQ</td>
<td>page 12</td>
<td></td>
</tr>
<tr>
<td>Turbidity</td>
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<td>Nitrate (NO₃)</td>
<td>NiCaVis® 705 IQ SF</td>
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<tr>
<td>Nitrite (NO₂)</td>
<td>NiCaVis® 705 IQ Ni SF</td>
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<td>Color</td>
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<tr>
<td>COD/BOD</td>
<td>NiCaVis® 705 IQ SF</td>
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## Fish Farming

From extensive to intensive management, from fresh to salt water fish farming – to monitor relevant parameters like pH, oxygen concentration, salinity, total suspended solids or turbidity, we offer respective sensors; including temperature.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Freshwater</th>
<th>Saltwater</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH (incl. Temperature)</td>
<td>Sensolyt® 700 IQ page 15</td>
<td>Sensolyt® 700 IQ SW page 15</td>
</tr>
<tr>
<td>Carbon</td>
<td>Spectral sensors page 38</td>
<td>Spectral sensors page 38</td>
</tr>
<tr>
<td>D.O. (incl. Temperature)</td>
<td>FDO® 700 IQ (protective cap MSK FDO® against fish bites must be ordered separately) page 11</td>
<td>FDO® 700 IQ SW (protective cap MSK FDO® against fish bites included) page 11</td>
</tr>
<tr>
<td></td>
<td>TriOxomatic® 700 IQ page 12</td>
<td>TriOxomatic® 700 IQ SW page 12</td>
</tr>
<tr>
<td>Salinity (incl. Temperature)</td>
<td>TetraCon® 700 IQ page 20</td>
<td>TetraCon® 700 IQ SW page 19</td>
</tr>
<tr>
<td>TSS/Turbidity</td>
<td>VSolid® 700 IQ page 25</td>
<td>VSolid® 700 IQ SW page 25</td>
</tr>
<tr>
<td></td>
<td>VisoTurb® 700 IQ page 24</td>
<td>VisoTurb® 700 IQ SW page 24</td>
</tr>
</tbody>
</table>
Reliable and continuous measurements of dissolved oxygen have become vitally important in many areas of the water/wastewater treatment facilities. The availability of accurate and real-time measured concentrations is an absolute requirement for process monitoring and dynamic process control to ensure an efficient plant operation.

**Fields of application:**
- Nitrification/Denitrification
- Deammonification
- Inlet and Effluent Monitoring
- Water Pollution Control
- Fishfarming/Aquaculture

see also https://www.xylemanalytics.com/en/parameters/dissolved-oxygen-do
Monitoring and Control

In the **biological nutrient removal process** of wastewater treatment plants, continuous and precise measurement of dissolved oxygen concentration is of vital importance to an optimal and trouble free operation of the water/wastewater treatment facility. The efficiency and energy demand of the purification process, in the nitrification and denitrification phase, is mainly determined by the performance of the aeration control system; i.e. by a load-dependent regulation of the oxygen supply.

In the presence of dissolved oxygen, the nitrifying bacteria convert ammonium to nitrate. The activity of the microorganisms depends on the oxygen concentration, with an economic break point at about 2 mg/l. Higher oxygen concentrations do not increase the rate of degradation, but require significantly more energy for the oxygen blowers (see illustration).

The aerator equipment is responsible for the majority of energy consumption in a biological wastewater plant. To reduce the energy and maintenance costs, it is therefore important to reduce the aerator operation time to a minimum depending on the required dissolved oxygen concentration.

The residual dissolved oxygen in the sludge, however, has a negative effect on the conditions in the denitrification stage. On the other hand in nitrification, a certain amount of dissolved oxygen is needed for optimal growth and ammonium oxidation. **Only the use of precise and reliable on-line measuring instruments will ensure an efficient and energy saving control of the process.**

![NH₄-N degradation rate vs. D.O. concentration](image)

**Measurement Systems**

For more than 70 years, WTW has been recognized as a leader in the field of Dissolved Oxygen measurements. Innovative technologies, creative and continuous product development, and extensive application expertise have resulted in superior instruments and systems of outstanding performance, reliability and design for the most precise online measurements available.
FDO®: Optical D.O. Measuring

The innovative geometry of the membrane cap with a 45° angle enables the precise oxygen measurement and avoids false readings through air bubble adhesion. Due to the automatic recognition of the calibration free cap, a manual input of the serial number is not needed (potential source of error). The fast and easy cap change saves a lot of work and time.

The long lifetime of the cap (3-5 years) ensures sustainable operation and minimized maintenance costs. Further, the moveable sensor mounting enables a self cleaning effect at the measuring window.

Additional cleaning with pressured air is possible for special applications but not required for typical municipal wastewater treatment plants (see figure).

Sensor Caps

The caps for the digital FDO® sensors are calibration free and provide reliable DIN compliant results.

SC-FDO 700

for wastewater treatment plants, with a response time ideal for treatment processes

SC-FDO 701

with faster response time

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SC-FDO 700</td>
<td>Universal sensor cap for FDO® 700 IQ/700 IQ SW</td>
<td>201654</td>
</tr>
<tr>
<td>SC-FDO 701</td>
<td>Fast response time sensor cap for FDO® IQ 701/IQ 701 SW</td>
<td>201655</td>
</tr>
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For technical data please see datasheet D2.02
Optical FDO® D.O. sensors see from page 11
Information about IQ SENSOR NET system see from page 50
Digital

Calibration-free, reliable, DIN compliant - the optical FDO® oxygen sensors for the IQ SENSOR NET to regulate biological cleaning steps.

**FDO® 700 IQ**

for the IQ SENSOR NET

**FDO® 700 IQ SW**

for use in corrosive media

**FDO® 701 IQ**

with a faster response time

**FDO® 701 IQ SW**

with a faster response time, for use in corrosive media

**Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDO® 700 IQ</td>
<td>Optical O₂ sensor for connection to the IQ SENSOR NET.</td>
<td>201650</td>
</tr>
<tr>
<td>FDO® 701 IQ</td>
<td>like the FDO®700 IQ, but with a faster response time</td>
<td>201660</td>
</tr>
<tr>
<td>FDO® 700 IQ SW</td>
<td>like the FDO®700 IQ, but as sea water model with plastic arming (POM)</td>
<td>201652</td>
</tr>
<tr>
<td>FDO® 701 IQ SW</td>
<td>like the FDO®700 IQ SW, but with a faster response time</td>
<td>201653</td>
</tr>
</tbody>
</table>

For technical data please see datasheet D2.02

Alternatives and accessories see brochure “Product Details” and website

Information about IQ SENSOR NET system see from page 50

Analog dissolved oxygen sensors see from page 13

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Ordering Information

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<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDO® 700 IQ</td>
<td>Optical O₂ sensor for connection to the IQ SENSOR NET.</td>
<td>201650</td>
</tr>
<tr>
<td>FDO® 701 IQ</td>
<td>like the FDO®700 IQ, but with a faster response time</td>
<td>201660</td>
</tr>
<tr>
<td>FDO® 700 IQ SW</td>
<td>like the FDO®700 IQ, but as sea water model with plastic arming (POM)</td>
<td>201652</td>
</tr>
<tr>
<td>FDO® 701 IQ SW</td>
<td>like the FDO®700 IQ SW, but with a faster response time</td>
<td>201653</td>
</tr>
</tbody>
</table>
TriOxmatic®: Electrochemical D.O. Measuring

Precise and accurate results with mature and proven oxygen sensors with 3 electrodes system.

The amperometric sensors provide an outstanding high accuracy - without startup phase. The robust teflon membrane is resistant towards organic deposits. The self diagnostic systems SensLeck and SensReg are continuously monitoring the membrane and the electrolyte consumption.

Digital

TriOxmatic® IQ: The digital amperometric oxygen sensors are automatically recognized by the IQ SENSOR NET.

TriOxmatic® 700 IQ

for the IQ SENSOR NET

TriOxmatic® 700 IQ SW

for use in corrosive media

TriOxmatic® 701 IQ

for the measurement of trace oxygen

TriOxmatic® 702 IQ

trace sensor (ppb range) - for pure or boiler feed water

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TriOxmatic® 700 IQ</td>
<td>Universal oxygen sensor for the measurement and regulation of oxygen input in wastewater treatment plants</td>
<td>201640</td>
</tr>
<tr>
<td>TriOxmatic® 700 IQ SW</td>
<td>Like TriOxmatic®700 IQ, but as a sea water model</td>
<td>201641</td>
</tr>
<tr>
<td>TriOxmatic® 701 IQ</td>
<td>Like TriOxmatic®700 IQ, but with faster response times</td>
<td>201644</td>
</tr>
<tr>
<td>TriOxmatic® 702 IQ</td>
<td>Like TriOxmatic®700 IQ, but as a trace sensor (ppb area) suitable for pure or boiler feed water</td>
<td>201646</td>
</tr>
</tbody>
</table>

For technical data please see datasheet D2.01
Alternatives and accessories see brochure “Product Details” and website
Information about IQ SENSOR NET system see from page 50
Optical IQ dissolved oxygen sensors see from page 10
Analog

Analog oxygen sensors to be connected to the analog transmitters Oxi 298.

**TriOxmatic® 690**

suitable for pure measuring tasks in wastewater/water

**TriOxmatic® 701**

increased resolution for the residual oxygen in the denitrification

### Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TriOxmatic® 690-7</td>
<td>Universal oxygen sensor without self diagnosis, with normal response time, cable length 7 m</td>
<td>201690</td>
</tr>
<tr>
<td>TriOxmatic® 701-7</td>
<td>Oxygen sensor with automatic self diagnosis and faster response time, cable length 7 m</td>
<td>201678</td>
</tr>
</tbody>
</table>

For technical data please see datasheet D3.02

Alternatives and accessories see brochure “Product Details” and website

Analog monitors see from page 66

Optical IQ dissolved oxygen sensors see from page 10

Further analog Sensors

For drinking water monitoring: The sensor can be connected to the Oxi 298 Pt1000 transmitter as well as to the multiparameter system MULTILINE 1000 with the open wires.

- Including cable
- Integrated temperature sensor
- Easy handling

### Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxi ML 41</td>
<td>Electrochemical D.O. sensor with 1 m (3.3 ft) fixed cable for transmitter MULTILINE 1000 or Oxi 4000. Range: 0-20 mg/l or 0 - 200%, temperature range: -5-45 °C, with temperature sensor Pt 1000; open cable ends.</td>
<td>201931</td>
</tr>
</tbody>
</table>

For technical data please see datasheet D7.04

Alternatives and accessories see brochure “Product Details” and website

Analog monitors see from page 66

Optical IQ dissolved oxygen sensors see from page 11
pH/ORP Measurement

Reliable with convenient calibration

pH is one of the most important parameters measured throughout the water, wastewater and many process industries. In the biological treatment of wastewaters, for example, the acidic or alkaline condition of the waste water has an essential influence on the activity of the microorganisms; continuous online pH control is required. Precise and reliable systems for pH monitoring and control are also necessary in drinking water plants and in a variety of industrial process technologies.

**Fields of application:**
- Wastewater Treatment Facilities
- Water Treatment Utilities
- Neutralization Plants
- Surface Waters and Groundwater
- Industrial Processes
- Food Industry
- Pharmaceutical industry

SensoLyt® System Design

Especially in difficult conditions, which are often found in sewage treatment facilities, high demands towards the continuous pH/ORP measurements are made. These concern in particular the reliability and the operational safety of the employed systems.

Especially developed for these harsh applications, the SensoLyt® sensors are precision engineered assemblies, which consist of a submersible housing with a built-in preamplifier and the appropriate combination of pH or ORP electrode. In combination with our WTW controllers they form a reliable pH/ORP measuring system, which represents the highest standard with regard to accuracy, EMC noise immunity and economy.

Digital

To be connected to the digital, modular, and expandable IQ SENSOR NET as well as to the single parameter controller 281.

SensoLyt® 700 IQ

for the IQ SENSOR NET

SensoLyt® 700 IQ SW

for use in corrosive media

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SensoLyt® 700 IQ</td>
<td>Digital pH/ORP fitting for SensoLyt® electrode, with integrated preamplifier and temperature sensor (please order cable separately)</td>
<td>109170</td>
</tr>
<tr>
<td>SensoLyt® 700 IQ SW</td>
<td>Like the SensoLyt® 700 IQ, but as a sea water model</td>
<td>109171</td>
</tr>
</tbody>
</table>

For technical data please see datasheet D2.03
Alternatives and accessories see brochure “Product Details” and website
Information about IQ SENSOR NET system see from page 50
Analog pH/ORP fitting see from page 16
**Analog**

To be operated with analog transmitters.

**SensoLyt® 650**

Passive fitting without preamplifier for the high-impedance measuring process. The fitting is connected directly to the high ohm input of the WTW pH monitor pH 298 NTC.

**SensoLyt® 650 EX**

Version for explosive areas of zone 1, to be connected to the Stratos Pro A 201 X pH controllers.

### Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SensoLyt® 650-7</td>
<td>pH/ORP armature with high-impedance signal transmission and integrated temperatur sensor, ca/e length 7 m</td>
<td>109195</td>
</tr>
<tr>
<td>SensoLyt® 650-7 EX</td>
<td>as above, but for explosion-endangered area (Ex ib IIC T6 Gb X), connectable to StratosProA201XpH-0(-1). Electrodes need to be ordered separately</td>
<td>109195EX</td>
</tr>
</tbody>
</table>

For technical data please see datasheets D3.03 and D4.04

Alternatives and accessories see brochure “Product Details” and website

Analog monitors see from page 65

**Combination Electrodes**

SensoLyt® electrodes for all applications - from drinking water to municipal and industrial wastewater.

**Armored Versions**

for connection with SensoLyt® armature: **SEA(-EX/-HP), TFA, ECA, DWA, PtA, and PtFA.**

**Electrode without armor**

to be installed into flow cells; can be connected directly to pH 298 transmitters.

### Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SensoLyt® SEA</td>
<td>pH electrode for heavily loaded wastewater, to be connected to SensoLyt® armature, range 2 ... 12 pH</td>
<td>109115</td>
</tr>
<tr>
<td>SensoLyt® SEA EX</td>
<td>Like model SEA, but for explosion-endangered area (only when connected to SensoLyt® 650-7 EX Sensor)</td>
<td>109115EX</td>
</tr>
<tr>
<td>SensoLyt® TFA</td>
<td>Like model SEA, but for not typically municipal or industrial wastewater</td>
<td>109114</td>
</tr>
<tr>
<td>SensoLyt® DWA</td>
<td>Like model SEA, but for drinking water, range 0 ... 14 pH</td>
<td>109119</td>
</tr>
<tr>
<td>SensoLyt® PtA</td>
<td>ORP electrode for heavily loaded wastewater, to be connected to SensoLyt® armature, range ±2000 mV</td>
<td>109125</td>
</tr>
<tr>
<td>SensoLyt® PtFA</td>
<td>ORP electrode for heavily loaded wastewater, to be connected to SensoLyt® armature, range ±2000 mV</td>
<td>109126</td>
</tr>
<tr>
<td>SensoLyt® SE</td>
<td>Like model SEA, but unamored, to be installed by example in flow cells</td>
<td>109100</td>
</tr>
</tbody>
</table>

For technical data please see datasheets D3.04 and D4.04

Alternatives and accessories see brochure “Product Details” and website

Analog monitors see from page 65

SensoLyt® armature see page 15
Analog ProcessLine® Combination Electrodes

The special construction of the ProcessLine® electrodes brings them very close to the optimum for liquid electrolyte electrodes with respect to their accuracy, stability, fast response time and durability. To be installed in a flow cell or in a retractable armature. The low maintenance SteamLine electrodes are designed to be used in a SIP treatment (sterilization in place) and a CIP cleaning (clean in place).

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PL 80-120pH</td>
<td>pH electrode, S8, 0...14 pH, no Temp., 120 mm</td>
<td>109233</td>
</tr>
<tr>
<td>PL 80-225pH</td>
<td>pH electrode, S8, 0...14 pH, no Temp., 225 mm</td>
<td>109234</td>
</tr>
<tr>
<td>SL 80-120 PH</td>
<td>pH electrode, S8, 0...14 pH, no Temp., 120 mm, capable for SIP and CIP</td>
<td>285113213</td>
</tr>
<tr>
<td>PL 82-225pHT VP</td>
<td>pH electrode, VP, 0...14 pH, Pt100, 225 mm</td>
<td>109239</td>
</tr>
<tr>
<td>SL 81-120 PHT-VP</td>
<td>pH electrode, VP, 0...14 pH, Pt1000, 120 mm, capable for SIP and CIP</td>
<td>285113308</td>
</tr>
<tr>
<td>PL 81-120 pHT VP</td>
<td>pH electrode, VP, 0...14 pH, Pt1000, 120 mm</td>
<td>285113550</td>
</tr>
</tbody>
</table>

Analog SenTix® Electrodes

To measure pH and ORP in drinking water, WTW offers analog sensors to be connected to analog transmitters pH 298 and MULTILINE 1000.

The pH electrode SenTix® ML 70 ist equipped with a thread PG 13.5 and a S7 plug head. The ORP sensor SenTix® ML RP provides a measuring range of -2000 ... +2000 mV and a temperature range of 0 ... 80 °C.

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>SenTix®ML 70</td>
<td>pH combination electrode with gel electrolyte, 57 plug head, glass-shaft; PG 13.5 screw thread</td>
<td>104100</td>
</tr>
<tr>
<td>SenTix®ML ORP</td>
<td>ORP combination electrode with gel electrolyte, 57 plug head, glass-shaft; PG 13.5 screw thread</td>
<td>104150</td>
</tr>
</tbody>
</table>
Conductivity Measurement

Reliable in multiple applications

Conductivity is a well recognized and often indispensable parameter of state-of-the-art water, wastewater and industrial process analysis. Continuous measuring systems are employed to monitor the salt load of the influent in wastewater treatment plants, to control quality of drinking water and ultra-pure water or to determine non-specific contaminants in industrial processes.

**Fields of application:**
- Municipal and Industrial Wastewater
- Water Treatment
- Surface Waters
- Sea Water, Brackish Water, Fishfarming
- Boiler Feed Water
- Demineralization
- Industrial Process Fluids

TetraCon® 4-electrode Design

Compared to the 2-electrode conductivity sensors, the 4 electrode version of the TetraCon® series provides a very large measuring range. For several years now, the proven technique guarantees smooth operation, especially in the area of higher conductivities. Further on, the 4 electrode cell is very resistant against contamination and provides a fast temperature compensation by its integrated temperature sensor. A pressure resistance of up to 10 bar enables the installation in pipes.

Digital

To be connected to the digital, modular, and expandable IQ SENSOR NET as well as to the single parameter controller 281.

TetraCon® 700 IQ

for the IQ SENSOR NET

TetraCon® 700 IQ SW

for use in corrosive media

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TetraCon® 700 IQ</td>
<td>Digital 4 electrode conductivity measuring cell for highly contaminated wastewater</td>
<td>302500</td>
</tr>
<tr>
<td>TetraCon® 700 IQ SW</td>
<td>Like TetraCon® 700 IQ, but as a sea water model</td>
<td>302501</td>
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</tbody>
</table>

For technical data please see datasheet D2.04
Alternatives and accessories see brochure “Product Details” and website
Information about IQ SENSOR NET system see from page 50
Analog conductivity measuring cells see from page 18
Analog

To be operated with analog transmitters.

TetraCon® 700

especially developed submersible sensor assembly for use in wastewater treatment plants

TetraCon® 700 EX

Version for explosive areas of zone 1, to be connected to the Stratos Pro A 201 X Cond controllers.

TetraCon® 325

Suitable for universal applications

TetraCon® DU/T

flow measuring cell for standard industrial applications

LRD 325

for installation in pipes

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>TetraCon® 700-7</td>
<td>Universal 4 electrode conductivity cell especially for wastewater treatment plants, 7 m (23 ft) cable</td>
<td>302316</td>
</tr>
<tr>
<td>TetraCon® 700-7 EX</td>
<td>Analog 4 electrodes conductivity measuring cell with integrated temperature sensor and 7 m cable with open wires</td>
<td>302316EX</td>
</tr>
<tr>
<td>TetraCon® 325</td>
<td>4 electrodes measuring cell, with integrated temperature sensor, cell constant K=0.475 cm⁻¹, cable length 1.5m</td>
<td>301960</td>
</tr>
<tr>
<td>TetraCon® DU/T</td>
<td>4 electrodes flow measuring cell, with integrated temperature sensor, cell constant: K=0.0778 cm⁻¹</td>
<td>301252</td>
</tr>
<tr>
<td>LRD 325-7</td>
<td>4 electrodes measuring cell to be screwed into pipe, with integrated temperature sensor, cable length 7 m</td>
<td>302229</td>
</tr>
</tbody>
</table>

For technical data please see datasheets D3.06 and D4.03

Alternatives and accessories see brochure “Product Details” and website

Analog monitors see from page 65

Controllers / isolated amplifier for EX area see from page 69
2-electrode Measuring Cells

Pipe installation, drinking water, ultra-pure water and trace measurements - the right cell for any application. The reliable 2 electrode cell provides high resolution and accuracy.

Analog

To be operated with analog transmitters.

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LRD 01</td>
<td>2 electrodes measuring cell to be screwed into pipe, with integrated temperature sensor, cable length 7 m</td>
<td>302222</td>
</tr>
<tr>
<td>LR 325/01</td>
<td>Conductivity measuring cell for ultrapure water, with integrated temperature sensor, cell constant K=0.1 cm⁻¹, Glass flow cell</td>
<td>301961</td>
</tr>
<tr>
<td>LR 325/001</td>
<td>as above, but for trace measurement, Stainless steel flow cell</td>
<td>301962</td>
</tr>
<tr>
<td>LR ML</td>
<td>Conductivity cell, with 1 m fixed cable, 2 graphite electrodes; -5-80°C; range 100 μS/cm - 20 mS/cm; temperature measurement with Pt 1000, PG 13.5 screw thread</td>
<td>301150</td>
</tr>
</tbody>
</table>

For technical data please see datasheet D3.06

For alternative and accessories see brochure "Product Details" and website

Analog monitors see from page 65

Digital conductivity measuring cells see from page 19
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) ist 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.

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.

Digital

To be connected to the digital, modular, and expandable IQ SENSOR NET as well as to the single parameter controller 281.

VisoTurb® 700 IQ

for the IQ SENSOR NET

VisoTurb® 700 IQ SW

for use in corrosive media

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VisoTurb® 700 IQ</td>
<td>Digital turbidity sensor with integrated ultrasonic cleaning</td>
<td>600010</td>
</tr>
<tr>
<td>VisoTurb® 700 IQ SW</td>
<td>Like VisoTurb®700 IQ, but as a sea water model</td>
<td>600011</td>
</tr>
</tbody>
</table>

For technical data please see datasheet D2.05

Alternatives and accessories see brochure “Product Details” and website

Information about IQ SENSOR NET system see from page 50

Sensors for suspended solids measurement see from page 25

Xylem Analytics Germany Sales GmbH & Co. KG, WTW · Am Achalaich 11 · 82362 Weilheim · Germany
Tel +49 881 1830 · Fax +49 881 183-420 · Info.WTW@xylem.com · www.xylemanalytics.com
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.

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

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ViSolid® 700 IQ</td>
<td>Digital suspended solids sensor with integrated ultrasonic cleaning</td>
<td>600012</td>
</tr>
<tr>
<td>ViSolid® 700 IQ SW</td>
<td>Like ViSolid® 700 IQ, but as a sea water model</td>
<td>600013</td>
</tr>
</tbody>
</table>

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 50

UV/VIS spectral sensors for TSS measurement see from page 26

Xylem Analytics Germany Sales GmbH & Co. KG, WTW · Am Achalaich 11 · 82362 Weilheim · Germany
Tel +49 881 1830 · Fax +49 881 183-420 · Info.WTW@xylem.com · www.xylemanalytics.com
UV-VIS Spectral Sensors

With spectral sensors (wavelengths 200-720 nm) TSS, Nitrate and Color 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 32
- NitraVis® 705 IQ TS for effluent from page 32
- NiCaVis® 705 IQ TS for effluent from page 32
- CarboVis® 701 IQ TS for inlet and aeration from page 38
- CarboVis® 705 IQ TS for effluent from page 38
- CarboVis® 705 IQ TS Co for effluent from page 47
- NiCaVis® 705 IQ TS Co for effluent from page 47
- CarboVis® 705 IQ TS Co for effluent from page 47
- NiCaVis® 705 IQ SF for e.g. rivers and lakes from page 32
- NiCaVis® 705 IQ SF Co for e.g. rivers and lakes from page 47
- NiCaVis® 705 IQ Ni SF for e.g. rivers and lakes from page 32
- ColorVis 705 IQ for e.g. rivers and lakes from page 47

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

- NiCaVis® 705 IQ SF for e.g. rivers and lakes from page 32
- NiCaVis® 705 IQ SF Co for e.g. rivers and lakes from page 47
- NiCaVis® 705 IQ Ni SF for e.g. rivers and lakes from page 32
- ColorVis 705 IQ for e.g. rivers and lakes from page 47
Analyzer for Turbidity

Turb PLUS 2000 Series

For Turbidity Monitoring in Drinking Water
For many drinking water treatment plants, turbidity is the most important parameter. With the Turb PLUS 2000, turbidity can be monitored according to DIN EN ISO 7027 or US EPA 180.1.

The devices with integrated ultrasonic cleaning can be used in sedimentation, filtration, disinfection and in the plant outlet.

Turb PLUS 2020
white light, without ultrasonic cleaning

Turb PLUS 2120
infrared light, without ultrasonic cleaning

Turb PLUS 2120 Set
infrared light, with ultrasonic cleaning and additional bubble trap

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turb PLUS 2020</td>
<td>Turbidity analyzer with white light (US EPA 180.1)</td>
<td>600026</td>
</tr>
<tr>
<td>Turb PLUS 2120</td>
<td>Turbidity analyzer with infrared light (ISO EN DIN 7027)</td>
<td>600036</td>
</tr>
<tr>
<td>Turb PLUS 2120 Set</td>
<td>Turb PLUS 2120 including external bubble trap</td>
<td>600037</td>
</tr>
<tr>
<td>BC-Turb/DW</td>
<td>External bubble trap</td>
<td>600041</td>
</tr>
<tr>
<td>Kal Kit Turb/DW</td>
<td>Calibration standard set (0.02, 10, 1000 NTU, cleaning tissues, designation rings)</td>
<td>600052</td>
</tr>
<tr>
<td>Kal Kit Turb PLUS 2000</td>
<td>Calibration standard set (0.02, 10, 100 NTU, cleaning tissues, designation rings)</td>
<td>600054</td>
</tr>
<tr>
<td>Kal Kit Turb 2110/DW</td>
<td>Calibration standard set (0.02, 1, 10 NTU, cleaning tissues, designation rings)</td>
<td>600056</td>
</tr>
</tbody>
</table>

For technical data please see datasheet D7.06
Alternatives and accessories see brochure “Product Details” and website
Pre-mounted panels for turbidity measurement see from page 67
Analyzer for chlorine see from page 49

For Turbidity Monitoring in Drinking Water
For many drinking water treatment plants, turbidity is the most important parameter. With the Turb PLUS 2000, turbidity can be monitored according to DIN EN ISO 7027 or US EPA 180.1.

The devices with integrated ultrasonic cleaning can be used in sedimentation, filtration, disinfection and in the plant outlet.

High accuracy of ±2% of reading or ±0.02 NTU below 40 NTU
Ultrasonic Cleaning System
ISO and EPA compliant
Resolution down to 0.0001 NTU
20 mA Current and RS 485 (Modbus RTU)
Can be integrated into existing IQ SENSOR NET via MIQ/IC2

For technical data please see datasheet D7.06
Alternatives and accessories see brochure “Product Details” and website
Pre-mounted panels for turbidity measurement see from page 67
Analyzer for chlorine see from page 49
Nitrogen

Nutrient Parameter: Ammonium, Nitrate, Nitrite

Ammonium

Nitrogen is found in a large variety of compounds and forms, it is considered to be the ultimate “quick-change artist”. In municipal wastewater it is mainly encountered as a waste product in the form of urea, which is already partly converted to ammonium nitrogen by ammonification.

Fields of application:

- Municipal wastewater (treatment plant)
  - Inlet
  - Biological Cleaning
  - Outlet
- Centrate water
- Deammonification (Anammox)
- Surface waters
In the aeration basin, the initial step of nitrification consists of oxidizing the ammonium present in wastewater via nitrite to nitrate, for which oxygen is required. In the denitrification, nitrate is degraded to nitrogen gas under anaerobic conditions.

For fish, ammonium is already toxic in very small concentrations. Hence, water bodies with an ammonium concentration of 1 mg/l are not suitable for fish. Therefore, the discharge values, which have to be met by treatment plants, have to be very low.

Nitrate

Nitrate is produced from ammonium in the nitrification process. To monitor and control this process and the subsequent denitrification (reduction of nitrate) in a wastewater treatment plant, nitrate is often measured among other parameters. As nitrification also takes place in soils and groundwater, whereby groundwater is the main source for drinking water in many countries, it often contains nitrate. The nitrate threshold value for drinking water in Europe is 50 mg/l.

As nitrate is used directly as a nutrient source for plant organisms, it is used as fertilizer in agriculture. High amounts of nitrates in fertilizers are often transferred into surface water and groundwater leading to eutrophication and therefore higher algae growth, as well as increasing nitrate content in drinking water.

In general, nitrate is harmless to people. In the human body nitrate may however be transformed into nitrite, which can be dangerous to health.

Nitrite

Nitrite occurs in considerably smaller amounts within wastewater treatment plants and soils. It is an intermediate product and oxidized very quickly into nitrate. Nevertheless, in newer cleaning processes of wastewater treatment plants (e.g. Anammox), nitrite is produced intentionally and therefore becomes measureable.

Nitrite is a fish poison and harmful to humans. Besides circulatory disturbances and a lack of oxygen supply, in the human body nitrite is classified as potentially carcinogenic. Due to this, monitoring is crucial for health and ecological reasons.

\[
\text{NO}_X
\]

\(\text{NO}_X\) is a sum parameter of nitrate (\(\text{NO}_3^-\)) and nitrite (\(\text{NO}_2^-\)).
ISE Sensors

The reliable and robust ISE sensors are measuring NH₄ and NO₃ continuously and in real-time without delays. The sensors increase process transparency and allow a dynamic and efficient control of nitrification and denitrification. The accuracy of the measurement is dependent on the measured medium. For compensation of this effect a matrix adjustment is necessary. You can benefit from our intuitive operation, which makes the adjustment as easy as possible! Our cross compensation enables the correction of several measured values with only one compensation electrode.

Digital Sensors

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

VARiON®Plus 700 IQ

Ion selective measurement of ammonium and nitrate, free of reagents with automatic compensation of potassium/chloride

AmmoLyt®Plus 700 IQ

Ammonium can be measured directly in the medium without sample preparation or sample transfer. Measurement of centrate and other process waters up to 2,000 mg/l NH₄-N

NitraLyt®Plus 700 IQ

Nitrogen elimination - transparent, process optimized, economical. Nitrate can be measured directly in the medium - optimized for regulation purposes

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VARiON®Plus 700 IQ</td>
<td>Digital sensor for the ion selective measurement of ammonium and nitrate, without electrodes</td>
<td>107040</td>
</tr>
<tr>
<td>AmmoLyt®Plus 700 IQ</td>
<td>Digital sensor for ion selective measurement of ammonium</td>
<td>107070</td>
</tr>
<tr>
<td>NitraLyt®Plus 700 IQ</td>
<td>Digital sensor for the ion selective measurement of nitrate</td>
<td>107080</td>
</tr>
</tbody>
</table>

For technical data please see datasheets D2.07, D2.08 and D2.09
Alternatives and accessories see brochure “Product Details” and website
Information about IQ SENSOR NET system see from page 50
Spectral nitrate/nitrite sensors see from page 32
Electrodes

The electrodes for the digital ISE sensors convince with reliable measurements.

Reference electrode VARiON® Ref

for mounting into sensors VARiON®Plus 700 IQ, NitraLyt®Plus 700 IQ, AmmoLyt®Plus 700 IQ

Ammonium electrode VARiON®Plus NH₄

for mounting into sensors VARiON®Plus 700 IQ and AmmoLyt®Plus 700 IQ, measuring range: 0.1 - 2,000 mg/l NH₄-N

Potassium electrode VARiON®Plus K

for mounting into sensors VARiON®Plus 700 IQ and AmmoLyt®Plus 700 IQ, measuring range: 1 - 1,000 mg/l K⁺

Nitrate electrode VARiON®Plus NO₃

for mounting into sensors VARiON®Plus 700 IQ and NitraLyt®Plus 700 IQ, measuring range: 0.1 - 1,000 mg/l NO₃-N

Chloride electrode VARiON®Plus Cl⁻

for mounting into sensors VARiON®Plus 700 IQ and NitraLyt®Plus 700 IQ, measuring range: 1 - 1,000 mg/l Cl⁻

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>VARiON® Ref</td>
<td>Reference electrode for mounting into sensors VARiON®Plus 700 IQ/NitraLyt®Plus 700 IQ/ AmmoLyt®Plus 700 IQ</td>
<td>107042</td>
</tr>
<tr>
<td>VARiON®Plus NH₄</td>
<td>Ammonium electrode for VARiON®Plus 700 IQ and AmmoLyt®Plus 700 IQ</td>
<td>107044</td>
</tr>
<tr>
<td>VARiON®Plus NO₃</td>
<td>Nitrate electrode for VARiON®Plus 700 IQ and NitraLyt®Plus 700 IQ/NitraLyt®</td>
<td>107045</td>
</tr>
<tr>
<td>VARiON®Plus K</td>
<td>Potassium electrode for VARiON®Plus 700 IQ and for AmmoLyt®Plus 700 IQ</td>
<td>107046</td>
</tr>
<tr>
<td>VARiON®Plus Cl⁻</td>
<td>Chloride electrode for VARiON®Plus 700 IQ and for NitraLyt®Plus 700 IQ</td>
<td>107047</td>
</tr>
</tbody>
</table>

Sets and accessories see brochure "Product Details" and website
Information about IQ SENSOR NET system see from page 50
Spectral nitrate/nitrite sensors see from page 32
Ammonium analyzer see from page 34
UV-VIS and UV Spectral Sensors

UV-VIS spectral sensors represent a precise measuring technique with long-term stability and provide continuous recording of the selected parameters NO$_3$ and NO$_2$ in measuring cycles within minute range. The disturbance variables for optical measuring, such as turbidity/suspended solids, are eliminated by spectral recording. Thanks to integrated ultrasonic cleaning, a very long maintenance-free operation is possible.

**Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>NitraVis® 701 IQ</td>
<td>Spectral nitrate probe for the measurement in inlet/aeration with integrated ultrasonic cleaning, multifunctional slide and shock-absorption-rings, without connecting cable (order SACIQ separately)</td>
<td>481044</td>
</tr>
<tr>
<td>NitraVis® 705 IQ</td>
<td>Like NitraVis® 701 IQ, but for measuring in the outlet</td>
<td>481046</td>
</tr>
<tr>
<td>NitraVis® 701 IQ TS</td>
<td>Spectral nitrate and suspended solids probe for measuring in the inlet/aeration with integrated ultrasonic cleaning, multifunctional slide and shock-absorption-rings, without connecting cable (order SACIQ separately)</td>
<td>481045</td>
</tr>
<tr>
<td>NitraVis® 705 IQ TS</td>
<td>Like NitraVis® 701 IQ TS, but for measuring in the outlet</td>
<td>481047</td>
</tr>
<tr>
<td>NitraVis® 701 IQ NI</td>
<td>Spectral nitrate and nitrite probe for measuring in the inlet/aeration with integrated ultrasonic cleaning, multifunctional slide and shock-absorption-rings, without connecting cable (order SACIQ separately)</td>
<td>481056</td>
</tr>
<tr>
<td>NitraVis® 705 IQ NI</td>
<td>Like NitraVis® 701 IQ NI, but for measuring in the drain/outlet</td>
<td>481057</td>
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<tr>
<td>NiCaVis® 705 IQ</td>
<td>Spectral UV-VIS probe for measuring nitrate, COD$<em>{tot}$, COD$</em>{diss}$, TOC, BOD, DOC, SAC$<em>{tot}$, SAC$</em>{diss}$ and UVT$_{254}$ in the drain/outlet with integrated ultrasonic cleaning, multifunctional slide and shock-absorption-rings, without connecting cable (order SACIQ separately)</td>
<td>481052</td>
</tr>
<tr>
<td>NiCaVis® 705 IQ TS</td>
<td>Like NiCaVis® 705 IQ, but with TS</td>
<td>481053</td>
</tr>
<tr>
<td>NiCaVis® 705 IQ TS Co</td>
<td>like NiCaVis® 705 IQ TS, but with Color</td>
<td>481066</td>
</tr>
<tr>
<td>NiCaVis® 701 IQ NI</td>
<td>Spectral UV sensor for the measurement of nitrate. nitrate. COD$<em>{tot}$, COD$</em>{diss}$, TOC, BOD, DOC, SAC$<em>{tot}$, SAC$</em>{diss}$, UVT$_{254}$ in the inlet and in the aeration with integrated ultrasonic cleaning, multifunctional slide and shock-absorption-rings, without connecting cable (order SACIQ separately)</td>
<td>481054</td>
</tr>
<tr>
<td>NiCaVis® 705 IQ NI</td>
<td>Like NiCaVis® 701 IQ NI, but for the measurement in the drain/outlet</td>
<td>481055</td>
</tr>
<tr>
<td>UV 701 IQ NOx</td>
<td>Optical nitrate (NOx) sensor to measure higher concentration with integrated ultrasonic cleaning, multifunctional slide and shock-absorption-rings, without connecting cable (order SACIQ separately)</td>
<td>481034</td>
</tr>
<tr>
<td>UV 701 IQ NOx</td>
<td>Like UV 701 IQ NOx, but to measure low concentrations</td>
<td>481035</td>
</tr>
<tr>
<td>NiCaVis® 705 IQ SF</td>
<td>Spectral UV-VIS sensor (60 mm) for the measurement of Nitrate, COD, TOC, BOD, DOC, SAC, UVT$_{254}$ and TS in surface water bodies with integrated ultrasonic cleaning.</td>
<td>481058</td>
</tr>
<tr>
<td>NiCaVis® 705 IQ SF Co</td>
<td>like NiCaVis® 705 IQ SF, but with Color</td>
<td>481060</td>
</tr>
<tr>
<td>NiCaVis® 705 IQ NI SF</td>
<td>Spectral UV-VIS sensor (60 mm) for the measurement of Nitrate, Nitrite, COD, TOC, BOD, DOC, SAC, UVT$_{254}$ and TS in surface water bodies with integrated ultrasonic cleaning.</td>
<td>481059</td>
</tr>
</tbody>
</table>

For technical data please see datasheets D2.10 to D2.14 and D2.26

Alternatives and accessories see brochure “Product Details” and website

Information about IQ SENSOR NET system see from page 50

CarboVis® spectral sensors for determination of carbon parameters see page 38
### Parameters

| Parameter                  | NitraVis® 701 IQ | NitraVis® 705 IQ | NitraVis® 701 IQ TS | NitraVis® 705 IQ TS | NitraVis® 701 IQ NI | NitraVis® 705 IQ NI | NiCaVis® 701 IQ | NiCaVis® 705 IQ | NiCaVis® 705 IQ TS | NiCaVis® 701 IQ TS Co | NiCaVis® 705 IQ TS Co | NiCaVis® 701 IQ NI SF | NiCaVis® 705 IQ SF Co | NiCaVis® 705 IQ SF | NiCaVis® 701 IQ SF | NiCaVis® 705 IQ SF SF Co | NiCaVis® 701 IQ SF | NiCaVis® 705 IQ SF | NiCaVis® 705 IQ SF SF Co | CarboVis® 701 IQ | CarboVis® 705 IQ | CarboVis® 701 IQ TS | CarboVis® 705 IQ TS | CarboVis® 705 IQ TS Co | NiCaVis® 705 IQ SAC | NiCaVis® 705 IQ SF SF SF Co | NiCaVis® 705 IQ SF SF SF Co | NiCaVis® 705 IQ SF SF SF Co | CarboVis® 701 IQ SAC | CarboVis® 705 IQ SAC | CarboVis® 705 IQ SF SF SF Co | CarboVis® 705 IQ SF SF SF Co | CarboVis® 705 IQ SF SF SF Co | CarboVis® 705 IQ SF SF SF Co | CarboVis® 705 IQ SF SF SF Co |
|---------------------------|------------------|------------------|---------------------|---------------------|---------------------|---------------------|------------------|------------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| *Usable with System 2020 3G and 282 / 284* |

#### Usable Sensors

- **Nitrate** (optical/spectral)
- **Nitrite** (optical/spectral)
- **NOX** (optical/spectral)*
- **COD** (optical/spectral)
- **BOD** (optical/spectral)
- **TOC** (optical/spectral)
- **DOC** (optical/spectral)
- **SAC254** (optical/spectral)
- **UVT254** (optical/spectral)

*Gap size for inlet and outlet depends on concentrations
* Nitrite and Nitrate are included in the measured value.
Analyzers

The wet chemical analyzer Alyza IQ NH₄ provides precise results due to its revolutionary MultiPort Valve. Further on, the instrument requires extremely low amounts of liquids.

Ammonium measurement with Alyza IQ NH₄ (Indophenol method acc. to DIN 38 406) for wastewater plant effluent and river monitoring.

- Minimized reagent consumption and waste
- Extremely low maintenance
- No service contract required
- High accuracy at low measuring ranges

Ammonium Analyzer Alyza IQ NH₄

For integration into the digital, modular and expandable IQ SENSOR NET

Alyza IQ NH₄-110

1-channel version with 2 measuring ranges; without pump

Alyza IQ NH₄-111

1-channel version with 2 measuring ranges; with 1 pump

Alyza IQ NH₄-112

2-channel version with 2 measuring ranges; with 2 pumps

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alyza IQ NH₄-110</td>
<td>Ammonium analyzer Alyza IQ NH₄ for the IQ Sensor Net, Measurement range 1 and 2, 1-channel w/o pump. Scope of delivery: Ammonium analyzer for indoor and outdoor use, spare parts for the first year, pre-installed 2 m SNCIQ and power cable (please order controller and reagents separately).</td>
<td>825010</td>
</tr>
<tr>
<td>Alyza IQ NH₄-111</td>
<td>Ammonium analyzer Alyza IQ NH₄ for the IQ Sensor Net, Measurement range 1 and 2, 1-channel with pump. Scope of delivery: Ammonium analyzer for indoor and outdoor use, spare parts for the first year, pre-installed 2 m SNCIQ and power cable (please order controller and reagents separately).</td>
<td>825011</td>
</tr>
<tr>
<td>Alyza IQ NH₄-112</td>
<td>Ammonium analyzer Alyza IQ NH₄ for the IQ Sensor Net, Measurement range 1 and, 2-channel with two pumps. Scope of delivery: Ammonium analyzer for indoor and outdoor use, spare parts for the first year, pre-installed 2 m SNCIQ and power cable (please order controller and reagents separately).</td>
<td>825012</td>
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</tbody>
</table>

For technical data please see datasheet D2.24
Reagents and accessories see brochure “Product Details” and website
Information about IQ SENSOR NET system see from page 50
Further analyzer see from page 63
Carbon

Carbon parameters: COD, BOD, TOC, DOC, SAC, UVT

To measure the organic load of water, the parameters TOC, DOC, COD or BOD are used. The differences in these parameters show that these measurements are not identical and that the measured values therefore can not be the same.

Very often, SAC is used as a surrogate parameter. With the same sensor also UV transmission (UVT) can be measured and used as control parameter for disinfection plants.

Fields of application:
- Municipal wastewater (treatment plant)
  - Inlet
  - Biological Cleaning
  - Outlet
- Centrate water
- Micropollutant removal
- Surface waters
- Disinfection plants

see also https://www.xylemanalytics.com/en/parameters/chemical-oxygen-demand-cod

COD

Chemical Oxygen Demand - contains all substances that can be dissolved by chemical oxidation. It is at the same time the conventional parameter for the calculation of wastewater charges.

BOD

Biochemical Oxygen Demand - contains only the compounds that can be oxidated microbiologically.

TOC

Total Organic Carbon - a measure for the total organically bound carbon.

DOC

Dissolved Organic Carbon - dissolved organic share of TOC.

SAC

The SAC (spectral absorption coefficient) is a parameter that can be determined relatively easily. Many organic compounds have characteristical UV absorption spectrums. The intensity of the light attenuation can, therefore, be correlated with the organic load.

This correlation is significant in measuring media with low variations of composition concerning color, solids and their optical characteristics. Wastewater, however, contains many substances with completely different optical characteristics. For each substance, a different correlation factor concerning the carbon content applies.

UVT

Additionally, UV transmission can be measured with the SAC sensor at 254 nm. UVT is particularly used to control disinfection plants.

Depending on the requirements, the turbidity can be compensated (UVT\textsubscript{dis}) or not (UVT\textsubscript{tot}).

Spectral Online Sensors

The CarboVis\textsuperscript{®} and NiCaVis\textsuperscript{®} sensors measure the total spectrum range from ultraviolet to long wave visible light (200–720 nm; UV-VIS sensors) or in the ultraviolet range (200–390 nm; UV sensors). The measured values are determined from the high information content of the spectral data. The calculation is based on methods and characteristics that were achieved from a multitude of measurements and longtime analyses. The user can, therefore, select algorithms that are adapted to the measuring site (inlet, biological tank, outlet) having a high correlation with the basic parameter COD.

The spectral procedure has an additional advantage: the turbidity of the test sample, which affects optical measurements, is optimally compensated over a wide wavelength range. Moreover, the spectral measurement provides an optimal compensation of the influence of existing nitrate and nitrite for the COD measurement.
UV-VIS and UV Spectral Sensors

The chemical-free spectral measurement allows a precise determination of the COD, nitrate, nitrite and total suspended solids.

Due to the built-in ultrasonic cleaning system, a very long maintenance-free operation is possible. Accumulation of dirt and biofilm formation is gently but very effectively prevented in this manner.

High-tech materials such as titanium and peek ensure an easy use in almost all and even corrosive media.

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>CarboVis® 701 IQ</td>
<td>Spectral UV-VIS probe to measure COD&lt;sub&gt;tot&lt;/sub&gt;, COD&lt;sub&gt;diss&lt;/sub&gt;, TOC, BOD, DOC, SAC&lt;sub&gt;tot&lt;/sub&gt;, SAC&lt;sub&gt;diss&lt;/sub&gt;, and UVT&lt;sub&gt;254&lt;/sub&gt; in the inlet and the aeration with integrated ultrasonic cleaning, multifunctional slide and shock-absorption-rings, without connecting cable (order SACIQ separately)</td>
<td>481048</td>
</tr>
<tr>
<td>CarboVis® 705 IQ</td>
<td>Like CarboVis® 701 IQ, but for the measurement in the drain</td>
<td>481050</td>
</tr>
<tr>
<td>CarboVis® 701 IQ TS</td>
<td>Spectral UV-VIS probe to measure COD&lt;sub&gt;tot&lt;/sub&gt;, COD&lt;sub&gt;diss&lt;/sub&gt;, TOC, BOD, DOC, SAC&lt;sub&gt;tot&lt;/sub&gt;, SAC&lt;sub&gt;diss&lt;/sub&gt;, UVT&lt;sub&gt;254&lt;/sub&gt; and suspended solids in the infeed and the stimulation with integrated ultrasonic cleaning, multifunctional slide and shock-absorption-rings, without connecting cable (order SACIQ separately)</td>
<td>481049</td>
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<tr>
<td>CarboVis® 705 IQ TS</td>
<td>Like CarboVis® 701 IQ TS, but for the measurement in the drain</td>
<td>481051</td>
</tr>
<tr>
<td>CarboVis® 705 IQ TS Co</td>
<td>Like CarboVis® 705 IQ TS, but with Color</td>
<td>481065</td>
</tr>
<tr>
<td>NiCaVis® 705 IQ</td>
<td>Spectral UV-VIS probe for measuring nitrate, COD&lt;sub&gt;tot&lt;/sub&gt;, COD&lt;sub&gt;diss&lt;/sub&gt;, TOC, BOD, DOC, SAC&lt;sub&gt;tot&lt;/sub&gt;, SAC&lt;sub&gt;diss&lt;/sub&gt;, and UVT&lt;sub&gt;254&lt;/sub&gt; in the drain/outlet with integrated ultrasonic cleaning, multifunctional slide and shock-absorption-rings, without connecting cable (order SACIQ separately)</td>
<td>481052</td>
</tr>
<tr>
<td>NiCaVis® 705 IQ TS</td>
<td>Like NiCaVis® 705 IQ TS, but with TS</td>
<td>481053</td>
</tr>
<tr>
<td>NiCaVis® 705 IQ TS Co</td>
<td>Like NiCaVis® 705 IQ TS, but with Color</td>
<td>481066</td>
</tr>
<tr>
<td>NiCaVis® 701 IQ NI</td>
<td>Spectral UV probe for the measurement of nitrite. COD&lt;sub&gt;tot&lt;/sub&gt;, COD&lt;sub&gt;diss&lt;/sub&gt;, TOC, BOD, DOC, SAC&lt;sub&gt;tot&lt;/sub&gt;, SAC&lt;sub&gt;diss&lt;/sub&gt;, UVT&lt;sub&gt;254&lt;/sub&gt; in the inlet and in the aeration with integrated ultrasonic cleaning, multifunctional slide and shock-absorption-rings, without connecting cable (order SACIQ separately)</td>
<td>481054</td>
</tr>
<tr>
<td>UV 701 IQ SAC</td>
<td>Optical SAC and UV sensor (254 nm) to measure higher concentrations with integrated ultrasonic cleaning, multifunctional slide and shock-absorption-rings, without connecting cable (order SACIQ separately)</td>
<td>481036</td>
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<tr>
<td>UV 705 IQ SAC</td>
<td>Like UV 701 IQ SAC, but to measure lower concentrations</td>
<td>481038</td>
</tr>
<tr>
<td>NiCaVis® 705 IQ SF</td>
<td>Spectral UV-VIS sensor (60 mm) for the measurement of Nitrates, COD, TOC, BOD, DOC, SAC, UVT&lt;sub&gt;254&lt;/sub&gt; and TS in surface water bodies with integrated ultrasonic cleaning</td>
<td>481058</td>
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<tr>
<td>NiCaVis® 705 IQ SF Co</td>
<td>Like NiCaVis® 705 IQ SF, but with Color</td>
<td>481060</td>
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<tr>
<td>NiCaVis® 705 IQ SF NI</td>
<td>Spectral UV-VIS sensor (60 mm) for the measurement of Nitrates, Nitrates, COD, TOC, BOD, DOC, SAC, UVT&lt;sub&gt;254&lt;/sub&gt; and TS in surface water bodies with integrated ultrasonic cleaning</td>
<td>481059</td>
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For technical data please see datasheets D2.11, D2.13, D2.15, D2.16 and D2.26

Alternatives and accessories see brochure “Product Details” and website

Information about IQ SENSOR Net system see from page 50

Spectral sensors for nitrogen see from page 32
### Parameter Sensoren

| Parameter          | NitraVis® 701 IQ | NitraVis® 705 IQ | NitraVis® 701 IQ TS | NitraVis® 705 IQ TS | NitraVis® 701 IQ NI | NitraVis® 705 IQ NI | NiCaVis® 701 IQ TS | NiCaVis® 705 IQ TS | NiCaVis® 701 IQ NI | NiCaVis® 705 IQ NI | NiCaVis® 705 IQ SF | NiCaVis® 705 IQ SF Co | NiCaVis® 705 IQ SF Co Ni | UV 701 IQ NOx | UV 705 IQ NOx | NiCaVis® 705 IQ SF | NiCaVis® 705 IQ SF Co | NiCaVis® 705 IQ SF Co Ni | CarboVis® 701 IQ | CarboVis® 701 IQ TS | CarboVis® 701 IQ TS Co | CarboVis® 701 IQ SAC | CarboVis® 701 IQ SAC | UV 705 IQ SAC | UV 705 IQ SAC | CarboVis® 705 IQ SAC | CarboVis® 705 IQ SAC |
|--------------------|------------------|------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|------------------|------------------|---------------------|---------------------|---------------------|------------------|------------------|---------------------|---------------------|
| TSS (optical)      | ☑                | ☑                | ☑                   | ☑                   | ☑                   | ☑                   | ☑                   | ☑                   | ☑                   | ☑                   | ☑                   | ☑                   | ☑                   | ☑                   | ☑                | ☑                | ☑                   | ☑                   | ☑                   | ☑                | ☑                | ☑                   | ☑                   |
| Color (optical)    | ☑                | ☑                | ☑                   | ☑                   | ☑                   | ☑                   | ☑                   | ☑                   | ☑                   | ☑                   | ☑                   | ☑                   | ☑                   | ☑                   | ☑                | ☑                | ☑                   | ☑                   | ☑                   | ☑                | ☑                | ☑                   | ☑                   |
| Nitrate (optical/spectral) | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ |
| Nitrite (optical/spectral) | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ |
| NOX (optical/spectral) | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ |
| COD (optical/spectral) | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ |
| BOD (optical/spectral) | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ |
| TOC (optical/spectral) | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ |
| DOC (optical/spectral) | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ |
| SAC<sub>254</sub> (optical/spectral) | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ |
| UVT<sub>254</sub> (optical/spectral) | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ | ☑ |

* Gap size for inlet and outlet depends on concentrations
† Nitrite and Nitrate are included in the measured value
Phosphate

Precipitation Dosing and Outlet Monitoring

Phosphorus compounds – in particular ortho-phosphate \( \text{PO}_4^{3-} \) – are considered to be the limiting nutrients in most stagnant and flowing waters. An increase in their concentration caused by higher input (wastewater, soil erosion etc.) results directly in increasing eutrophication of the water with known effects such as increased growth of algae, oxygen depletion and even anoxia in the deeper regions, etc. Hence, the elimination of phosphorus on wastewater treatment plants is very important.

**Fields of application:**
- Municipal wastewater (wwtp)
  - Precipitation control
  - Effluent monitoring
- Surface water

Analyzer

The wet chemical analyzer **Alyza IQ PO₄** provides precise results due to its revolutionary MultiPort Valve. Further on, the instrument requires extremely low amounts of liquids.

Precipitation control and outlet monitoring with the orthophosphate measurement of the Alyza IQ PO₄ (molybdate-vanadate method or yellow method). It is connectable to IQ SENSOR NET Systems 2020 and 282/284 and provides 10 W to the IQ SENSOR NET.

### Orthophosphate Analyzer Alyza IQ PO₄

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

#### Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alyza IQ PO₄-111</td>
<td>PO₄ analyzer, 1-channel, with MR 1; incl. 2 m SNCIQ cable, reagent sets need to be ordered separately</td>
<td>825511</td>
</tr>
<tr>
<td>Alyza IQ PO₄-112</td>
<td>as above, but 2-channel</td>
<td>825512</td>
</tr>
<tr>
<td>Alyza IQ PO₄-121</td>
<td>PO₄ analyzer, 1-channel, with MR 2; incl. 2 m SNCIQ cable, reagent sets need to be ordered separately</td>
<td>825521</td>
</tr>
<tr>
<td>Alyza IQ PO₄-122</td>
<td>as above, but 2-channel</td>
<td>825522</td>
</tr>
</tbody>
</table>

For technical data please see datasheet D2.25. Reagents and accessories see brochure “Product Details” and website. Information about IQ SENSOR NET system see from page 50. Further analyzer see from page 63.
The sludge level is the boundary of settled sludge to the projecting turbid or clear water, wherein the location of the sludge level is defined as the distance to the water surface (sludge level depth), or as distance from the tank bottom (sludge level).

The sludge level plays primarily a role in the area of wastewater treatment (pre-sedimentation, thickener and post-sedimentation), water treatment and also in the process analysis. The sensor can be used in clear, turbid and heavily polluted liquids with a high content of solids.

**Fields of application:**
- Municipal and industrial wastewater
  - Optimization / control of the (primary) sludge extraction
  - The management of the return sludge
  - Monitoring of the settling behavior

Digital IQ Sensor to Determine the Sludge Level

The IFL 700 IQ has a cleaning system of high quality materials such as titanium (shaft, sealed several times) and Grivory (scraper). Because of the technical design, this system is maintenance free. An annual replacement of seals or the scraper is not required. The cleaning cycle can be set individually in the system. The necessary cleaning frequency is automatically adjusted by the sensor.

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>IFL 700 IQ</td>
<td>Digital ultrasonic sensor with automatic cleaning to measure the sludge level</td>
<td>481200</td>
</tr>
</tbody>
</table>

For technical data please see datasheet D2.17. Alternatives and accessories see brochure “Product Details” and website. Information about IQ SENSOR NET system see from page 50. Radio module see page 56.

Digital ultrasonic sensor IFL 700 IQ
Color

Continuous. APHA Hazen 2120. DIN EN ISO 7887

Color has always been an important parameter for water quality, and in the last years the demand for continuous color measurement has been constantly growing. The new WTW color sensors for the IQ SENSOR NET measure according to the standards DIN EN ISO 7887: 2011, procedure C and APHA 2120 2018 (Hazen), procedure C.

Both are laboratory measurement methods. DIN EN ISO 7887: 2011, procedure C prescribes a wavelength of 410 nm, while APHA 2120 2018 (Hazen), procedure C allows the wavelength to be freely selected. For this method, the WTW sensors offer the wavelengths of 340, 350, 390, 445, 455 and 465 nm.

Fields of application:

- Municipal wastewater (treatment plant)
  - Inlet
  - Biological Cleaning
  - Outlet
- Centrate water
- Micropollutant removal
- Surface waters
- Disinfection plants
UV-VIS and UV Spectral Sensors

The chemical-free spectral measurement allows a precise determination of the COD, nitrate, nitrite and total suspended solids.

Due to the built-in ultrasonic cleaning system, a very long maintenance-free operation is possible. Accumulation of dirt and biofilm formation is gently but very effectively prevented in this manner.

High-tech materials such as titanium and PEEK ensure an easy use in almost all and even corrosive media.

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>ColorVis® 705 IQ</td>
<td>Spectral UV-VIS sensor to measure Color in wastewater, incl. integrated ultrasonic cleaning</td>
<td>481067</td>
</tr>
<tr>
<td>CarboVis® 705 IQ TS Co</td>
<td>Like ColorVis® 705, including Carbons and Total Suspended Solids</td>
<td>481065</td>
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<tr>
<td>NiCaVis® 705 IQ TS Co</td>
<td>Like ColorVis® 705, including Nitrate, Carbons and Total Suspended Solids</td>
<td>481066</td>
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<tr>
<td>NiCaVis® 705 IQ SF Co</td>
<td>Like NiCaVis® 705 IQ TS Co, without TSS, for Surface waters</td>
<td>481060</td>
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</table>

For technical data please see datasheets D2.26 and D2.27.

Alternatives and accessories see brochure “Product Details” and website.

Information about IQ Sensor Net system see from page 50.

- Low maintenance due to integrated ultrasonic cleaning
- Measurement of COD, BOD and many more
- No reagents, no consumables
Chlorine

Free and Total Chlorine

Due to its chemical properties and its high reactivity, chlorine is very well suited for the disinfection of water and to avoid contamination with bacteria and pathogens. Chlorine in water occurs balanced depending on pH; at neutral pH mainly as hypochlorous acid (HClO). Hypochlorous acid is a strong oxidizing agent: its disinfecting effect is based on the irreversible aggregation of protein of viruses and bacteria – similar to the effect of heat exposure. When the pH value increases, the balance in the water moves to hypochlorite (ClO⁻), which reduces the disinfecting effect.

Fields of application:

- Drinking Water Monitoring
- Pools & Thermal Baths
- Disinfection

see also https://www.xylemanalytics.com/en/parameters/chlorine
Analog Sensors

For free and total chlorine

The electrochemical chlorine sensors are developed for measurements in pools and drinking water. Directly connectable to the controller CI 298.

FCML 412 N
for measurement of free chlorine

TCML N
for measurement of total chlorine

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FCML 412 N</td>
<td>Chlorine electrode according to electrochemical principle, suitable for measurements of free chlorine in drinking water and pools. Measuring range: 0-2 mg/l, pH range 4-9, independent from pH value.</td>
<td>201187</td>
</tr>
<tr>
<td>TCML N</td>
<td>Chlorine electrode according to electrochemical principle, suitable for measurements of total chlorine in drinking water and pools. Measuring range: 0-2 mg/l.</td>
<td>201192</td>
</tr>
</tbody>
</table>

Analyzer

Chlorine 3017M

Continuous and precise measurement of free and total chlorine according to the DPD method (ISO method 7393-2 and US EPA method 334.0).

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorine 3107M</td>
<td>Online analyzer for photometric measurement of free and total chlorine, according to colorimetric DPD Method (ISO &amp;US EPA); outputs (selectable): 4 to 20 mA or RS 485 Modbus; range: 0-5 mg/l; sample inlet device not included;</td>
<td>860151</td>
</tr>
</tbody>
</table>

For free and total chlorine

The electrochemical chlorine sensors are developed for measurements in pools and drinking water. Directly connectable to the controller CI 298.

FCML 412 N
for measurement of free chlorine

TCML N
for measurement of total chlorine

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<tr>
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</tr>
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</table>

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<td>860151</td>
</tr>
</tbody>
</table>
IQ SENSOR NET

Digital. Modular. Flexible. Secure

Content
51 Fields of Application and Product Overview
52 IQ Systems
53 IQ Sensors
53 IQ Analyzer
54 IQ SENSOR NET System 2020
  54  The basic equipment
  59  The Sensors and Parameters
  61  The Modules
58 IQ SENSOR NET System 282/284
  58  The Controllers
  59  The Sensors and Parameters
  59  The Modules
59 IQ SENSOR NET System 281
  60  The Controller
  61  The Sensors and Parameters
  61  The Modules
83 Data sheets

see also https://www.xylemanalytics.com/en/landingpages/iq-sensor-net
Fields of Application and Product Overview

**IQ SENSOR NET - the system for wastewater treatment plants and more applications**

The digital and modular IQ SENSOR NET provides many unique advantages. Since 2001 our customers have enjoyed making the most out of the IQ SENSOR NET modular design. It enables you to easily expand the network with new members. This provides great flexibility and peace of mind that you are completely safe for all wastewater monitoring requirements in the future.

- Integrated overvoltage protection of all components (sensors, modules, cables)
- Reduce cost of installation with universal sensor connection and 2 wired cables rather than multiple power and output cables
- Intuitive design to operate and expand

At the beginning of your planning, make your decision between 3 systems:

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MIQ/TC 2020 3G</td>
<td>MIQ/MC3</td>
<td>DIQ/S 284</td>
</tr>
<tr>
<td>Connectable sensors</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Displayable parameters</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>USB interface</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Ethernet interface</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>System access via IQ WEB CONNECT</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Field bus connection</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Data memory</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>IQ sensors with universal sensor connection</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>MIQ modules</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>DIQ modules</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Wireless communication</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Redundant controller</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Max. number of displays</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Cable length</td>
<td>3 km</td>
<td>3 km</td>
</tr>
<tr>
<td>Oxygen sensors see from 11</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>pH/ORP probes see from 15</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Conductivity cells see from 19</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Turbidity sensors see from 25</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Suspended solids sensors see from 24</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Nitrogen probes see from 30</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Carbon probes see from 38</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>SAC/UVT probes see from 38</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Phosphate analyzer see from 41</td>
<td>●</td>
<td>●</td>
</tr>
<tr>
<td>Sludge level probes see from 43</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

see page 54 57 58 58 60

Visual System overview see cover of this catalog. All parameters (tabular design) see cover of this catalog. System details (tabular design) see cover of this catalog. Analog systems from 64. ATEX from 68.
IQ Systems

1) IQ Sensor Network:

   **System 2020 3G**
   - For up to 20 digital IQ sensors in any order
   - Measuring network for large plants, BackUp controller function for higher operational safety
   - Ethernet/LAN interface and integrated webserver for easy network connection
   - Fast and easy software update and saving of logbook data, measured values and configurations for additional safety on a USB stick
   - Up to 3 portable and clear displays even in direct sunlight

2) Outstanding among the compact:

   **System 282/284**
   - Multi-channel controller for up to 4 IQ sensors provides easy and low-cost expansion
   - Up to 20 parameters can be visualized at the same time
   - Perfectly suited to replace or add a single measuring point
   - Simple Data transfer and download with USB stick at every controller
   - Optional: Ethernet and RS 485 interface for network connection and fieldbus communication

3) The single parameter measuring point:

   **System 281**
   - Low-cost entrance into the digital measuring technique
   - For the parameters pH/ORP, Cond, D.O. and Turb
   - Stable, robust and reliable measuring technique

[Product descriptions of single components see 54]

Visual overview of systems see cover of this catalog.
IQ Sensors

One connection for all IQ sensors - via the universal SACIQ sensor cable

The standard version of high grade stainless steel is suitable for process and industry. All media contacting components of the seawater versions are made of titanium and plastic and are therefore extremely resistant to corrosion.

For the following parameters WTW offers IQ sensors:

- Oxygen (D.O.) from 12
- pH/ORP from 15
- Conductivity from 19
- Turbidity from 24
- Suspended Solids from 25
- Nitrogen: NH₄, NO₃, NO₂, NOₓ from 30
- Carbon: COD/TOC/DOC/BOD from 38
- SAC/UVT from 38
- Sludge Level from 42

IQ Analyzer

Alyza IQ - the wet-chemistry revolution is now

The Alyza IQ convinces with extremely low reagent and waste consumption and an easy handling. It can be connected to Systems 2020 and 282/284.

WTW offers IQ analyzers for the following parameters:

- Orthophosphate from 41
- Ammonium from 34
IQ SENSOR NET System 2020

A flexible system - reliable results

The IQ SENSOR NET is of modular design and grows with your demands.

Application areas and system concept

The IQ SENSOR NET is a network for analytical measurements. It is in worldwide operation since 2001, constantly evolving to meet customer needs. It is used for inlet and outlet monitoring, as well as for controlling the activated sludge process.

Due to its modular design, the system can be expanded any time by adding further modules and sensors in any order.

The basic equipment

Terminal/Controller MIQ/TC 2020 3G

Terminal/Controller for the IQ SENSOR NET System 2020, portable operating unit with large display, robust buttons and USB interface; connectible to every MIQ module.
Modules for Power Supply

**MIQ/PS** or **MIQ/24V** for the power supply via wide range or 24 V (AC and DC). The power supply modules that operate the IQ SENSOR NET are available in two models: The wide range power supply MIQ/PS for 100–240 VAC and the low-voltage power supply MIQ/24V for 24 VAC/24 VDC.

By the ability to stack these in the IQ SENSOR NET, you can quickly and easily dock these modules onto already existing ones - anywhere in the system. Therefore, additional mounting hardware is not required.

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIQ/TC 2020 3G</td>
<td>Terminal/Controller for the IQ Sensor Net System 2020</td>
<td>470020</td>
</tr>
<tr>
<td>MIQ/PS</td>
<td>Power supply module for voltage supply with wide range power supply</td>
<td>480004</td>
</tr>
<tr>
<td>MIQ/24V</td>
<td>Power supply module for voltage supply with 24 VAC or 24 VDC input voltage</td>
<td>480006</td>
</tr>
</tbody>
</table>

For technical data please see datasheets D1.01 and D1.03. Alternatives and accessories see brochure “Product Details” and website. Analog systems from 67. ATEX from 68.

The Sensors and Parameters

All common parameters from inlet to outlet. The sensors can be connected with a universal cable to any module.

For the following parameters WTW offers

**IQ sensors:**

- Oxygen (D.O.)
- pH/ORP
- Conductivity
- Turbidity
- Suspended Solids
- Nitrogen: NH₄, NO₃, NO₂, NOₓ
- Carbon: COD/TOC/DOC/BOD
- SAC/UV/T
- Sludge Level

**IQ analyzer:**

- Orthophosphate
- Ammonium

For technical data please see datasheets D1.01 and D1.03.
The Modules

Expand the functions of your system by adding specific modules.

Modules for System Expansion

The expansion modules are required to connect the IQ sensors as well as for the branching of the system.

**MIQ/JB**: passive module „Junction Box“ (MIQ/JB) with four identical IQ SENSOR NET connections

**MIQ/JBR**: Module with active repeater function to prepare the signal for very long cable distances

**MIQ/WL PS**: Radio module for the wireless connection in your IQ SENSOR NET

Modules with Analog Outputs

The analog output modules can be combined as required, up to a max. of 48 output channels (total of current outputs and relays in the system 2020).

**MIQ/R6** with 6 relays

**MIQ/CR3** with 3 current outputs and 3 relays

**MIQ/C6** with 6 current outputs

Module with Analog Inputs

With the module **MIQ/IC2** you will expand the system by two current inputs and you will also allow the connection of separate sensors and analyzers into the IQ SENSOR NET.

- Can be combined in any configuration thanks to the modular system - no matter where, when or how
- Simple installation – the stacking technique of the IQ SENSOR NET saves additional installation materials, work effort and time
- Integrated overvoltage protection ensures high operational safety in any weather

Connections of modules for system expansion, analog outputs, analog inputs, and power supply; with at least two IQ SENSOR NET connections

Antenna of radio module MIQ/WL PS

![Connection diagram](image1.png)

![Connection diagram](image2.png)

---

**Connectivity Options**

- Analog Outputs: MIQ/R6, MIQ/CR3, MIQ/C6
- Analog Inputs: MIQ/IC2
- System Expansion: MIQ/JB, MIQ/JBR, MIQ/WL PS

**Specifications**

- IP 66
- IP 67
- 3 Year Warranty
- D1.02, D1.04, D1.05, D1.06

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Tel +49 881 1830 · Fax +49 881 183-420 · Info.WTW@xylem.com · www.xylemanalytics.com
Modules with Digital Outputs

**MIQ/3-MOD** for MODBUS RTU connection  
**MIQ/3-PR** for PROFIBUS DP connection

Other MIQ Modules

**MIQ/CHV PLUS**: Magnetic valve module for automatic compressed air cleaning, controlled by relays of the IQ SENSOR NET.  
**MIQ/EKB**: To avoid trip hazards, you can also route the connecting cable of the IQ SENSOR NET underground. To extend these, you can use our ground cable terminal box MIQ/EKB.

Controller MIQ/MC3

The usage of a MIQ/MC3 controller provides reliable and direct data transfer to the PLC via the fieldbuses PROFIBUS DP, Modbus RTU (RS 485), Ethernet/IP, Modbus TCP or PROFINET ( RJ 45).

By the **MIQ/MC3**, the MIQ/TC 2020 3G becomes a portable Terminal, which can be connected to any module. You also benefit from Controller BackUp function and full remote access with IQ Web Connect.

Terminal IQ

Additional, cost-effective display and operating unit.

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIQ/JB</td>
<td>Modul IQ/Junction Box, for system branching, for system 2020 and 282/284, 4 free IQ SENSOR NET connections</td>
<td>480008</td>
</tr>
<tr>
<td>MIQ/WL PS SET</td>
<td>2 MIQ/WL PS radio modules, preconfigured as master and slave, ready to operate</td>
<td>480025</td>
</tr>
<tr>
<td>MIQ/R6</td>
<td>Module IQ / relay 6 with 6 relay outputs (output module, analog)</td>
<td>480013</td>
</tr>
<tr>
<td>MIQ/CR3</td>
<td>Module IQ / current relay 3, with 3 power and 3 relay outputs output module (analog)</td>
<td>480014</td>
</tr>
<tr>
<td>MIQ/C6</td>
<td>Module IQ / Current 6 with 6 power outputs (output module, analog)</td>
<td>480015</td>
</tr>
<tr>
<td>MIQ/3-MOD</td>
<td>Module IQ with MODBUS RTU / RS 485 connection (output module, digital)</td>
<td>471026</td>
</tr>
<tr>
<td>MIQ/IC2</td>
<td>Module IQ / input Current 2 with 2 inputs for 0/4 - 20 mA signals (input module)</td>
<td>480016</td>
</tr>
<tr>
<td>MIQ/CHV PLUS</td>
<td>Module IQ/Cleaning Head Valve for automatic relay or IQ SENSOR NET controlled compressed air cleaning (relay and compressed air supply, external)</td>
<td>480018</td>
</tr>
<tr>
<td>MIQ/MC3</td>
<td>System 2020 controller, for up to 20 sensors, w/ automatic air pressure compensation, USB and RJ45 interface (ethernet)</td>
<td>471020</td>
</tr>
<tr>
<td>MIQ/MC3-MOD</td>
<td>Like MIQ/MC3, but including MODBUS RTU/RS 485 interface</td>
<td>471022</td>
</tr>
<tr>
<td>MIQ/MC3-PR</td>
<td>Like MIQ/MC3, but including PROFIBUS-DP/RS 485 interface</td>
<td>471023</td>
</tr>
<tr>
<td>Terminal IQ</td>
<td>Terminal without controller function for the IQ Sensor Net System 2020 (MC3 or MIQ/TC 2020 3G required)</td>
<td>470021</td>
</tr>
</tbody>
</table>

For technical data please see datasheets D1.05, D1.04, D1.06 and D1.02  
Alternatives and accessories see brochure “Product Details” and website  
DIQ modules for the system 282/284 from 59  
Analog systems from 67
IQ SENSOR NET System 282/284

for small and mid-sized wastewater treatment plants

Controller for small and mid-sized wastewater treatment plants including USB-interface and internal data logger - up to 4 sensors, all parameters, available anytime.

The Controllers

DIQ/S 282

Controller for up to two sensors, available in five different versions: with three current outputs, with PROFIBUS interface, with MODBUS interface, with Ethernet interface for remote control or with Ethernet interface including protocols PROFINET, Modbus TCP and Ethernet/IP. Every version is also available with 24 V AC/DC supply.

DIQ/S 284

Controller for up to four sensors, available in five different versions: with six current outputs, with PROFIBUS interface, with MODBUS interface, with Ethernet interface for remote control or with Ethernet interface including protocols PROFINET, Modbus TCP and Ethernet/IP. Every version is also available with 24 V AC/DC supply.

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
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</thead>
<tbody>
<tr>
<td>DIQ/S 282-CR3</td>
<td>Controller for up to 2 IQ sensors, with 3 Relays, with 3 mA-outputs, 100 … 240 VAC</td>
<td>472110</td>
</tr>
<tr>
<td>DIQ/S 284-CR6</td>
<td>Controller for up to 4 IQ sensors, with 6 Relays, with 6 mA-outputs, 100 … 240 VAC</td>
<td>472130</td>
</tr>
</tbody>
</table>

Version with field bus protocols and digital interfaces see data sheets D1.07 and D1.08.

QRs prüfen

For technical data please see datasheets D1.07 and D1.08
Alternatives and accessories see brochure “Product Details” and website
IQ SENSOR NET System 2020 see 54
Analog systems from Seite 64
The Sensors and Parameters

All common parameters from inlet to outlet. The sensors can be connected with a universal cable to any module.

For the following parameters WTW offers IQ sensors:

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oxygen (D.O.)</td>
<td>from 12</td>
</tr>
<tr>
<td>pH/ORP</td>
<td>from 15</td>
</tr>
<tr>
<td>Conductivity</td>
<td>from 19</td>
</tr>
<tr>
<td>Turbidity</td>
<td>from 24</td>
</tr>
<tr>
<td>Suspended Solids</td>
<td>from 25</td>
</tr>
<tr>
<td>Nitrogen: NH₄, NO₃, NO₂</td>
<td>from 30</td>
</tr>
<tr>
<td>Carbon: COD/TOC/DOC/BOD</td>
<td>from 38</td>
</tr>
<tr>
<td>SAC/UVT</td>
<td>from 38</td>
</tr>
<tr>
<td>Sludge Level</td>
<td>from 43</td>
</tr>
<tr>
<td>Orthophosphate</td>
<td>from 41</td>
</tr>
<tr>
<td>Ammonium</td>
<td>from 34</td>
</tr>
<tr>
<td>Orthosposphate</td>
<td>from 41</td>
</tr>
<tr>
<td>Ammonium</td>
<td>from 34</td>
</tr>
</tbody>
</table>

The Modules

Modules for the flexible expansion of digital IQ SENSOR NET systems 181 and 282/284 by additional measuring points or functions – compact design

**DIQ/JB**

to connect a second or remote IQ sensor

**DIQ/CHV**

for the automatic relay-controlled compressed air cleaning in the system 181 and 282/284

**MIQ/...**

All MIQ modules can be used with the system 282/284 (except: MIQ/MC3(-...)) and MIQ/3(-...) (see from 56):

- MIQ/P5
- MIQ/24V
- MIQ/JB
- MIQ/JBR
- MIQ/PS
- MIQ/R6
- MIQ/CR3
- MIQ/C6
- MIQ/WL PS SET
- MIQ/IC2
- MIQ/CHV PLUS
- MIQ/EXB

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIQ/JB</td>
<td>Dual IQ/Junction Box</td>
<td>472005</td>
</tr>
<tr>
<td>DIQ/CHV</td>
<td>Dual IQ/Cleaning Head Valve</td>
<td>472007</td>
</tr>
</tbody>
</table>

For technical data please see datasheet D1.10. Alternatives and accessories see brochure “Product Details” and website.
IQ SENSOR NET System 281

Digital and easy
For pH, dissolved oxygen, turbidity or conductivity

Great technology at low price
Get decades of experience from WTW and use the established technology. With the excellent cost-performance ratio you can save time, work and money!

1 Controller. 1 Sensor.
Get started into the digital world and stay sustainable with the state-of-the-art technique. No preamplifier, reliable data transfer, automatic sensor recognition!

The Controller

• Cost advantage – one controller, one sensor
• Digital – for reliable data transfer
• WTW quality – proven, robust, durable
• HART and Modbus RTU versions available

DIQ/S 281

DIQ/S 181
The digital controller DIQ/S 181 for pH/ORP, D.O., Turbidity or Conductivity enables a sensor change at any time; cable length of up to 250 m.

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIQ/S 281-CR2</td>
<td>Dual IQ/System 281, Universal monitor for the connection of 1 digital IQ sensor (pH/ORP, D.O., conductivity or turbidity), with 2 analog outputs (0/4-20 mA) and 2 relays, 100 ... 240 VAC</td>
<td>472103</td>
</tr>
<tr>
<td>DIQ/S 281-CR2/24V</td>
<td>Like the DIQ/S 281, but for 24 V AC/DC voltage supply</td>
<td>472104</td>
</tr>
<tr>
<td>DIQ/S 281-MOD</td>
<td>Dual IQ/System 281, Universal monitor for the connection of 1 digital IQ sensor with MODBUS connection, 3 x Relays</td>
<td>472105</td>
</tr>
<tr>
<td>DIQ/S 281-HART</td>
<td>Universal monitor for the connection of 1 digital IQ sensor with HART connection</td>
<td>472106</td>
</tr>
</tbody>
</table>

For technical data please see datasheet D1.09
Alternatives and accessories see brochure “Product Details” and website
Analog systems from 64
Controllers and sensors for explosive area see 68
The Sensors and Parameters

Cost-effective and reliable measurement of pH/ORP, oxygen, conductivity or turbidity.

for pH/ORP measurement

SensoLyt® 700 IQ  see 15
SensoLyt® electrodes  see 15

for Dissolved Oxygen measurement

TriOxmatic® 700 IQ  see 12
FDO® 700 IQ  see 11
FDO® 701 IQ  see 10

for Conductivity measurement

TetraCon® 700 IQ  see 20

for Turbidity measurement

VisoTurb® 700 IQ  see 24

for Suspended Solids measurement

ViSolid® 700 IQ  see 25

The Modules

Modules for flexible extensions of the digital IQ SENSOR NET Systems 281 and 282/284 with additional measuring points or functions – compact shape.

see 59

61
Analyzer

On-line Measuring

In the wastewater treatment industry, there has been an increased need for on-line measuring analyzers justifying their market presence next to less expensive in-situ sensor systems. Especially when it comes to high-precision water analyses, for example in the monitoring of the discharge in sewage treatment plants requiring automatic calibrations and/or adjustments as well as standard DIN methods for analysis, analyzers are necessary.

**Fields of application:**
- Wastewater Treatment Plant
  - Precipitation control
  - Wastewater treatment plant effluent monitoring
- Surface Water
Alyza IQ Series

The new wet-chemical Alyza IQ delivers precise results thanks to the revolutionary MultiPort Valve and requires only extremely small quantities of reagent and sample.

- Minimized reagent consumption and waste
- Extremely low maintenance effort
- Service contract optional – it’s your choice
- High accuracy at low measuring ranges

Alyza IQ PO₄
for the measurement of orthophosphate
see from page 41

Alyza IQ NH₄
for the measurement of ammonium
see from page 34

Further Analyzers

Turb PLUS 2000 Series
for the monitoring of turbidity in drinking water
see from page 63

Chlorine 3017 M
for the measurement of chlorine in drinking water
see from page 49
Analog Monitors

pH/ORP, Conductivity, D.O. or Chlorine in numerous applications

The analog monitor series 298 for pH, conductivity, oxygen as well as for the chlorine measurement offers an enormously high operational reliability based on their galvanically isolated outputs. The clear menu structure along with the easy to read LCD display ensures a maximum operating and user friendliness.

The specially coated drinking water panels are pre-assembled and ready-to-operate. The sensors for free or total chlorine and the sensor combinations in case of a multi-parameter panel are freely selectable. Additional options such as analog/digital Outputs or flow monitoring are dependent on the selected panel.

**Fields of application:**
- Drinking Water Monitoring
- Swimming pools & Thermal Baths
- Textile manufacturing & dyeing processes
- Pure & ultrapure water
- Electroplating
- Landfills & Leachates
- Paper & Pulp Industry
- Fishfarming/Aquaculture
- Wastewater Treatment Facilities
Series 298 Single-parameter Field Monitor

Analog transmitter to directly connect analog pH/ORP electrodes, chlorine electrodes, conductivity cells and oxygen sensors with an outstanding price/performance ratio for a versatile application.

**pH 298**

for low-impedance pH measurement, automatic temperature compensation with NTC, Pt100 or Pt1000
analog pH electrodes see from page 16

**LF 298**
suitable for numerous conductivity measuring cells due to different measuring ranges and cell constants
analog conductivity measuring cells see from page 21

**Oxi 298**

with compressed air compensation and complete sensor monitoring
analog D.O. sensors see from page 13

**Cl 298**
to measure free or total chlorine
analog chlorine electrodes see from page 49

**Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>pH 298 NTC</td>
<td>Analog controller to measure pH/ORP, 230V and NTC</td>
<td>191230</td>
</tr>
<tr>
<td>pH 298 Pt100</td>
<td>Analog controller to measure pH/ORP, 230V and Pt100</td>
<td>191232</td>
</tr>
<tr>
<td>pH 298 Pt1000</td>
<td>Analog controller to measure pH/ORP, 230V and Pt1000</td>
<td>191234</td>
</tr>
<tr>
<td>Oxi 298 NTC</td>
<td>Analog controller to measure oxygen, 230V and NTC</td>
<td>291230</td>
</tr>
<tr>
<td>Oxi 298 Pt1000</td>
<td>Analog controller to measure oxygen, 230V and Pt1000</td>
<td>291234</td>
</tr>
<tr>
<td>LF 298 NTC</td>
<td>Analog controller to measure conductivity, 230V and NTC</td>
<td>391230</td>
</tr>
<tr>
<td>LF 298 Pt1000</td>
<td>Analog controller to measure conductivity, 230V and Pt1000</td>
<td>391234</td>
</tr>
<tr>
<td>Cl 298 Pt1000</td>
<td>Analog controller to measure chlorine, 230V and Pt1000</td>
<td>801254</td>
</tr>
</tbody>
</table>

24V versions available upon request

For technical data please see datasheet D3.01

Alternatives and accessories see brochure “Product Details” and website

Analog sensor technology see parameter chapters starting from page 13

EX monitors see from page 69

Xylem Analytics Germany Sales GmbH & Co. KG, WTW · Am Achalaich 11 · 82362 Weilheim · Germany
Tel +49 881 1830 · Fax +49 881 183-420 · Info.WTW@xylem.com · www.xylemanalytics.com
Panels with Analog Monitors

Single-parameter System Cl 298/P

Pre-mounted on specially coated panel to measure free or total chlorine

Monitors

Cl 298 with integrated data memory, 2 current outputs, 2 relays and Modbus in robust aluminium housing

Electrode with flow cell

Order FCML 412 N or TCML N electrode (see page 49) separately; electrodes and flow cell match perfectly

Flow control monitoring (optional)

To continuously monitor the upstream flow of the electrode; the flow rate is visualized on the display as a signal and can be transmitted via Modbus

Dosing valve

for optimum flow adjustments

Pressure reducer

0 ... 16 bar with integrated temperature sensor

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cl 298/P - 230 VAC</td>
<td>Ready to operate measuring panel to measure free or total chlorine, analog monitor 2 current outputs and MODBUS interface, with automatic temperature compensation (Pt1000), 230 VAC</td>
<td>801260</td>
</tr>
<tr>
<td>Cl 298/P Flow - 230 VAC</td>
<td>Like above, but with FlowControl to monitor the flow volume</td>
<td>801261</td>
</tr>
</tbody>
</table>

For technical data please see datasheets D3.01, D7.01, D7.03

Configuration of alternatives and accessories brochure “Product Details”

Analog sensor technology see parameter chapters starting from page 13

EX monitors see from page 69
MULTILINE 1000 Multi-parameter System

With up to 16 individually configurable measuring channels, the terminal MULTILINE 1000 is a very flexible measuring system for drinking water analysis. The system is pre-configured on a wall mounting panel and ready to use. Simply connect and start measuring: Drinking water measuring panel comes with a flow system, pressure reducer, dosing ball valve, completely pre-assembled cable and with a water-repellent panel. Connections with DN10 and optionally:

**pH measurement**

(SenTix® ML 70 see page 17)

**ORP measurement**

(SenTix® ML ORP see page 17)

**Chlorine measurements**

amperometric;
free chlorine - low pH dependancy (pH 4-9) (FCML 412 N see page 49) or total chlorine (TCML N see page 49)

**Turbidity measurement**

with white light, without ultrasonic cleaning (Turb 2000),
with white light and ultrasonic cleaning (Turb 2020);
with IR light, without ultrasonic cleaning (Turb 2100),
with IR light and ultrasonic cleaning (Turb 2120) see page 27

**Conductivity measurement**

(LR ML see page 21)

**Flow Measurement**

(with pre-mounted impeller)

**Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MULTILINE 1000 230VAC</td>
<td>Multi-parameter monitor to connect up to any 16 sensors, power supply 230 VAC</td>
<td>480200</td>
</tr>
<tr>
<td>MULTILINE 1000 115VAC</td>
<td>Like above, but with 115 VAC</td>
<td>480201</td>
</tr>
<tr>
<td>Drinking water panel</td>
<td>ready-to-use panel to measure pH, ORP, Cond, Chlorine and Turbidity (Turb 2000); X: with or without flow; yyyy: coding dependent on parameter selection; details see price list or drinking water flyer</td>
<td>8X-yyyyy</td>
</tr>
</tbody>
</table>

For technical data please see datasheets D7.01 to D7.04. Configuration of alternatives and accessories brochure “Product Details” Analog sensor technology see parameter chapters starting from page 13. Analyzer see from page 62.

Drinking water panel with basic equipment and all options (orange)
ATEX Instrumentation

For measurements in explosive atmospheres (EX area), WTW offers the complete EX measuring equipment with sensors, EX-compliant accessories, EX-transmitter, isolated amplifier and certificates.

EX pH/ORP Armatures and Combination Electrodes

EX Conductivity Measuring Cells

Fields of application:
- Zone 1 IIB
- Zone 1 IIC
- Inlet
- Channels
- Pumping station

EX monitors

The EX compliant monitor accepts the EX versions of the proven pH and conductivity sensors SensoLyt® and TetraCon®. Besides a clear display with color backlight, the monitor is equipped with 1 or 2 current outputs. Additionally, the monitor convinces with its operational capability in the temperature range of -20 °C ... 65 °C.

- EX certified
- Color backlighting
- For high ambient temperatures

EX monitor for pH

for pH measurements
analog pH electrodes see page 20

EX monitor for Cond

for conductivity measurements
analog conductivity measuring cells see page 20

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>EX monitor pH-0</td>
<td>pH transmitter with 1 analog current output</td>
<td>109444EX</td>
</tr>
<tr>
<td>EX monitor pH-1</td>
<td>pH transmitter with 2 analog current outputs</td>
<td>109445EX</td>
</tr>
<tr>
<td>EX monitor LF-0</td>
<td>Conductivity transmitter with 1 analog current output</td>
<td>300944EX</td>
</tr>
<tr>
<td>EX monitor LF-1</td>
<td>Conductivity transmitter with 2 analog current outputs</td>
<td>300945EX</td>
</tr>
</tbody>
</table>

For technical data please see datasheet D3.01
Alternatives and accessories see brochure “Product Details” and website
Isolated amplifier see below
Analog monitors see from page 64

Isolated amplifier

The isolated amplifier supplies the EX compliant monitor with auxiliary voltage and transfers the measured value. It can be connected directly to the PLC or as 24V version to the MIQ/IC2 of the IQ SENSOR NET.

- Maximum safety
- Secure separation and isolation of input, output and auxiliary power

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isolated amplifier</td>
<td>Isolated amplifier to power the EX-transmitter in an intrinsically safe way, power supply 90 … 253V, explosion protection II (1) G [Ex ia Ga] IIC</td>
<td>109446EX</td>
</tr>
<tr>
<td>Isolated amplifier</td>
<td>Same, but with supporting power supply 24 VAC/DC</td>
<td>109447EX</td>
</tr>
</tbody>
</table>

For technical data please see datasheet D3.01
Alternatives and accessories see brochure “Product Details” and website
EX monitors see above
Analog monitors see from page 64
Sampling in wastewater treatment plants or process technology is of crucial importance to guarantee comparability and comply with legal and operational requirements. The first work step to determine chemical, physical or biological parameters is the sampling process - no matter if portable or wall mounted.

**Fields of application:**
- Sewage Treatment
- Municipal Sewerage Systems
- Water Protection Control

Portable samplers

Mobile sampling in good hands. The lightweight design and the compact housing of the PB-M ensure a unique carrying comfort. The modern operating structure and vacuum pump system allow a carefree sampling process.

The portable sampler is perfect for sampling at the inlets and outlets of small to medium sized municipal waste water treatment plants, outdoor facilities, as well as for the punctual and regulatory supervision. Moreover, the long-term sampling of surface waters is supported by the “sleep mode” induced high battery run time.

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PB-M-S/1</td>
<td>Version with 1 x 13 l collection container (PE)</td>
<td>503250</td>
</tr>
<tr>
<td>PB-M-L/R24</td>
<td>Version with 24 x 1 l sample bottles (PE)</td>
<td>503280</td>
</tr>
<tr>
<td>LG/65/PB-M</td>
<td>Battery charger IP 65 for PB-M</td>
<td>503371</td>
</tr>
</tbody>
</table>

For technical data please see datasheet D5.01

Sampler for wall mounting

With its large and easily changeable collection containers, the PB-W is ideal for simple applications. The compact and lightweight housing assures fast mounting. Let’s get ready for standardized sampling.

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PB-W/230V</td>
<td>Compact sampler 230 V (50/60 Hz) for wall mounting</td>
<td>503200</td>
</tr>
<tr>
<td>PB-W/115V</td>
<td>Compact sampler 115 V (50/60 Hz) for wall mounting</td>
<td>503201</td>
</tr>
</tbody>
</table>

For technical data please see datasheet D5.03

In der englischen Version sind hier keine Verweise auf IQSN und Sensoren – Absicht?

IQ Sensor Net zur kontinuierlichen Überwachung siehe ab Seite 50
Sensoren zur kont. Überwachung siehe Parameterkapitel ab Seite 8
Accessories

IQ SENSOR NET and further Process Instrumentation

For the IQ SENSOR NET, WTW offers a wide range of mounting accessories. From channel over tank to pipe installation – from wall over rail to floor mounting. Besides ready-to-go sets, we also provide accessories as single scopes to enable any kind of individual demand for sensor and controller/module mounting.

Further mounting equipment for drinking water and other analog sensors are also available.

Fields of application:

- Mounting:
  - Channel
  - Basin
  - Pipe

- Mounting:
  - Wall
  - Handrail
  - Floor

Accessories for the IQ SENSOR NET System

Sensor Mounting

Extensions and holders

Controller/Module Mounting

Sunshields and mounting kits

Cable

Sensor and connection cables

Ready-to-go Sets

To mount up to 3 sensors including controller/module

Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensor Mounting: Extensions and holders</td>
<td></td>
<td></td>
</tr>
<tr>
<td>UA 55</td>
<td>Universal extension assembly (incl. handle and set of seals) for sensors 650, 690 and 70X (IQ), length: 317 mm (12.48 in)</td>
<td>109260</td>
</tr>
<tr>
<td>UA 130</td>
<td>Universal extension assembly (incl. handle and set of seals) for sensors 650, 690 and 70X (IQ), length: 1067 mm (42.01 in)</td>
<td>109261</td>
</tr>
<tr>
<td>EH/U 170</td>
<td>Sensor holder for 1 Sensor 650, 690 and 70X (IQ) to a swing mounting assembly</td>
<td>109320</td>
</tr>
<tr>
<td>EH2/U 170</td>
<td>Sensor holder for 2 Sensors 650, 690 and 70X (IQ) to a swing mounting assembly</td>
<td>109323</td>
</tr>
<tr>
<td>EH/V 170</td>
<td>Sensor holder for 1 Sensor 650, 690 and 70X (IQ) for direct wall mounting of UA armatures</td>
<td>109274</td>
</tr>
<tr>
<td>Controller/Module Mounting: Sun shields and mounting kits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SD/K 170</td>
<td>Sun shield for outdoor installation of junction boxes or an IQ SENSOR NET module and monitors</td>
<td>109284</td>
</tr>
<tr>
<td>MR/SD 170</td>
<td>Mounting kit for attaching sun shields to pipes</td>
<td>109286</td>
</tr>
<tr>
<td>SSH/IQ</td>
<td>Sun shield for mounting of IQ SENSOR NET modules and monitors</td>
<td>109295</td>
</tr>
<tr>
<td>PMS/IQ</td>
<td>Kit for panel mounting of IQ SENSOR NET modules and monitors</td>
<td>480048</td>
</tr>
<tr>
<td>THS/IQ</td>
<td>Kit for top hat rail mounting of IQ SENSOR NET modules and monitors</td>
<td>480050</td>
</tr>
<tr>
<td>ADA/D-SUB</td>
<td>D-SUB connection for Profibus and Modbus connections of IQ SENSOR NET modules and monitors</td>
<td>902888</td>
</tr>
<tr>
<td>Sensor and connection cables</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SACIQ-1,5</td>
<td>Cable to connect an IQ sensor, 1.5 m length</td>
<td>480040</td>
</tr>
<tr>
<td>SACIQ-7,0</td>
<td>Cable to connect an IQ sensor, 7 m length</td>
<td>480042</td>
</tr>
<tr>
<td>SACIQ-15,0</td>
<td>Cable to connect an IQ sensor, 15 m length</td>
<td>480044</td>
</tr>
<tr>
<td>SACIQ-20,0 SW</td>
<td>Cable to connect an IQ sensor, 20 m length, seawater application</td>
<td>480045</td>
</tr>
<tr>
<td>SNCIQ-SO</td>
<td>Connection cable for the IQ SENSOR NET, per meter</td>
<td>480046V</td>
</tr>
<tr>
<td>SNCIQ-100</td>
<td>Connection cable for the IQ SENSOR NET, 100 m</td>
<td>480068</td>
</tr>
</tbody>
</table>

Ready-to-go Sets to mount up to 3 sensors including controller/module

IN/SET1              | Installation set for 1 Sensor 650, 690 and 70X (IQ), incl. mounting stand, sensor holder, sun shield | 109304    |
IN/SET2              | Installation set for 2 Sensors 650, 690 and 70X (IQ), incl. mounting stand, sensor holder, sun shield | 109305    |
IN/SET3              | Installation set for 3 Sensors 650, 690 and 70X (IQ), incl. mounting stand, sensor holder, sun shield | 109306    |

further accessories and alternatives see brochure “Product Details” and website

Information about IQ SENSOR NET system see from page 11

Sensors see from page 11

Accessories for EX area see brochure “Product Details”
**Mounting Stands**

From wall over rail to floor mounting

![BE/ST 170](image)

**Floaters**

For fluctuating water levels

![Float S 200](image)

**Fixtures**

For pendulum and swing holders, without stands

![Swivel fixture BE/R 170-D](image)

**Chain and Shackle**

For individual solutions

![CH/50](image)

**Swing, Pendulum and Clamp Holders**

To mount sensors and holders

![EH/P 170 Holding Device VIS Set/EH](image)

**Mounting Equipment for 60 mm Sensors**

For spectral and sludge level sensors

**Cleaning Accessories**

Cleaning Air Box (Pressured air cleaning) and spare parts

Cleaning head CH

**Junction Boxes**

To connect analog sensors to the IQ SENSOR NET

KJ/pH-MIQ/S

**Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE/ST 170</td>
<td>Vario floor mounting stand, incl. universal joint fixture and brackets for sun shield</td>
<td>109280</td>
</tr>
<tr>
<td>BE/ST 170-R</td>
<td>Vario pipe mounting stand, incl. universal joint fixture and brackets for sun shield</td>
<td>109281</td>
</tr>
<tr>
<td>BE/ST 170-M</td>
<td>Vario wall mounting stand, incl. universal joint fixture and brackets for sun shield</td>
<td>109283</td>
</tr>
<tr>
<td>S 200</td>
<td>Float for mounting sensor if water level fluctuates</td>
<td>108540</td>
</tr>
<tr>
<td>BE/M 170</td>
<td>Masonary fixture installation of swing or pendulum mounting assembly directly on the basin edge or on top of a wall</td>
<td>109276</td>
</tr>
<tr>
<td>BE/R 170-D</td>
<td>Swivel/pivot clamp fixture for mounting of a swing or pendulum mounting assembly directly to basin railing</td>
<td>109279</td>
</tr>
<tr>
<td>S/CH</td>
<td>Shackle for chain fitting</td>
<td>505123</td>
</tr>
<tr>
<td>CH/50</td>
<td>Chain per meter</td>
<td>505124</td>
</tr>
<tr>
<td>EH/P 170-1,5</td>
<td>Swing mounting assembly, incl. chain, boom: 1.5 m/4.9 ft</td>
<td>109272</td>
</tr>
<tr>
<td>EH/P 170-2,5</td>
<td>Swing mounting assembly, incl. chain, boom: 2.5 m/8.1 ft</td>
<td>109273</td>
</tr>
<tr>
<td>EH/W 172</td>
<td>Wall mounting for 60 mm sensors</td>
<td>109361</td>
</tr>
<tr>
<td>EH/WB</td>
<td>Sensor carrier for 60 mm sensors</td>
<td>109362</td>
</tr>
<tr>
<td>Cleaning Air Box - 230 VAC</td>
<td>Air compressor for pressured air cleaning of sensors, 230V</td>
<td>480019</td>
</tr>
<tr>
<td>CH</td>
<td>Cleaning head to air pressure clean 40 mm sensors, incl. 15 air pressure tubes</td>
<td>900107</td>
</tr>
<tr>
<td>KJ/pH-MIQ/S</td>
<td>Connection box for high impedance pH/ORP electrodes to IQ SENSOR NET</td>
<td>505544</td>
</tr>
<tr>
<td>KJ/LF-0.4/MIQ</td>
<td>Connection box for conductivity cells with NTC to IQ SENSOR NET, cell constant: 0.475 cm⁻¹</td>
<td>505572</td>
</tr>
</tbody>
</table>

Further accessories and alternatives see brochure “Product Details” and website.

Information about IQ SENSOR NET system see from page 50.

60 mm Sensors:
- Spectral – page 28
- Sludge – page 42

Accessories for EX area see brochure “Product Details”
Accessories for further Process Instrumentation

### Rectractable Armatures
For pipe installation, enables sensor removal during operation

### Flow Cells
For measurements in the bypass

### Flow Assemblies
For pipe installation, without sensor removal during operation

### Adapters
Needed for usage of flow cells and vessels

### Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>WA 700/10</td>
<td>Retractable armature for measurements in pipelines, 40 mm sensors, removal during operation, 10 bar</td>
<td>480100</td>
</tr>
<tr>
<td>WA 700/2</td>
<td>Retractable armature for measurements in pipelines, 40 mm sensors, removal during operation, 2 bar</td>
<td>480102</td>
</tr>
<tr>
<td>ESS-WA 700/VA</td>
<td>Stainless steel (1.4571) weld-in socket for retractable armatures</td>
<td>480106</td>
</tr>
<tr>
<td>ADA-WA 1</td>
<td>Adapter for retractable armatures for pH/ORP, conductivity, D.O., turbidity and TSS</td>
<td>480108</td>
</tr>
<tr>
<td>ADA-DW 2</td>
<td>Adapter for retractable armatures for TriOxmatic® 690/70X and TetraCon® 700</td>
<td>480110</td>
</tr>
<tr>
<td>D 700/N</td>
<td>Flow cell for multi-parameter measurements (D.O., pH/ORP, conductivity, T)</td>
<td>203745</td>
</tr>
<tr>
<td>VIS FT-1</td>
<td>Flow cell for spectral UV and UV/Vis sensors</td>
<td>480080</td>
</tr>
<tr>
<td>EBST 700-DU/5N</td>
<td>Flow assembly for measurements in PVC pipelines, for sensors 650, 690, 70X (IQ)</td>
<td>203753</td>
</tr>
<tr>
<td>ESS 700 VA/N</td>
<td>Weld-in socket, for measurements in Stainless steel (1.4571) pipelines, for use with sensors 650, 690, 70X (IQ)</td>
<td>203755</td>
</tr>
<tr>
<td>ADA-DF 1</td>
<td>Adapter for flow cell for measuring of pH/ORP, conductivity and D.O.</td>
<td>203761</td>
</tr>
<tr>
<td>ADA-DF 7</td>
<td>Adapter for flow cell for measuring of turbidity</td>
<td>203773</td>
</tr>
<tr>
<td>ADA-DF 9</td>
<td>Adapter for flow cell for measuring of pH/ORP, D.O., conductivity, turbidity and suspended solids</td>
<td>203777</td>
</tr>
<tr>
<td>D-CL</td>
<td>Flow cell for chlorine sensors for drinking water</td>
<td>201150</td>
</tr>
<tr>
<td>D 222/3</td>
<td>Flow cell for pH, conductivity and ORP sensors for drinking water</td>
<td>401995</td>
</tr>
<tr>
<td>MZ WIS 40 ST 44</td>
<td>Weld-in socket fitting (straight), stainless steel (1.4404), for installation of CHEMtrac 830 M</td>
<td>108533</td>
</tr>
<tr>
<td>CHEMtrac 830 M</td>
<td>Manual retractable housing, stainless steel (1.4404), changing without process interruption; for pH electrodes</td>
<td>109237</td>
</tr>
<tr>
<td>ADA-G 1&quot;</td>
<td>V4A-stainless steel (1.4571) muffle for analogue Conductivity measuring cells</td>
<td>303202</td>
</tr>
<tr>
<td>EST-LRD</td>
<td>V4A-stainless steel (1.4571) weld-in socket for installation of LRD 01 or LRD 325</td>
<td>303209</td>
</tr>
</tbody>
</table>

For pH/ORP, conductivity or chlorine

### Ordering Information

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
<th>Order No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>D-CL</td>
<td>Flow cell for chlorine sensors for drinking water</td>
<td>201150</td>
</tr>
<tr>
<td>D 222/3</td>
<td>Flow cell for pH, conductivity and ORP sensors for drinking water</td>
<td>401995</td>
</tr>
<tr>
<td>MZ WIS 40 ST 44</td>
<td>Weld-in socket fitting (straight), stainless steel (1.4404), for installation of CHEMtrac 830 M</td>
<td>108533</td>
</tr>
<tr>
<td>CHEMtrac 830 M</td>
<td>Manual retractable housing, stainless steel (1.4404), changing without process interruption; for pH electrodes</td>
<td>109237</td>
</tr>
<tr>
<td>ADA-G 1&quot;</td>
<td>V4A-stainless steel (1.4571) muffle for analogue Conductivity measuring cells</td>
<td>303202</td>
</tr>
<tr>
<td>EST-LRD</td>
<td>V4A-stainless steel (1.4571) weld-in socket for installation of LRD 01 or LRD 325</td>
<td>303209</td>
</tr>
</tbody>
</table>

### Drinking Water Flow Cells
For pH/ORP, conductivity or chlorine

### Mounting equipment for Analog Sensors
For pH process electrodes and conductivity measuring cells
## WTW - IQ SENSOR NET Highlights

<table>
<thead>
<tr>
<th>Year</th>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>IQ SENSOR NET</td>
<td>the multi-parameter measuring system offers unlimited possibilities for online measurements</td>
</tr>
<tr>
<td>2001</td>
<td>VisoTurb® and ViSolid®</td>
<td>turbidity and TSS sensors with their revolutionary ultrasonic cleaning system give “low-maintenance” a completely new meaning</td>
</tr>
<tr>
<td>2001</td>
<td>SensoLyt® 700 IQ</td>
<td>digital pH Sensor</td>
</tr>
<tr>
<td>2002</td>
<td>AmmoLyt® 700 IQ</td>
<td>enables reliable Online measurement of Ammonium directly in the process</td>
</tr>
<tr>
<td>2002</td>
<td>TetraCon® 700 IQ</td>
<td>digital 4 electrodes sensor</td>
</tr>
<tr>
<td>2003</td>
<td>NitraLyt® 700 IQ</td>
<td>is a perfect supplementary nutrient parameter (Nitrate) for Online measurement</td>
</tr>
<tr>
<td>2004</td>
<td>NitraVis®, CarboVis® and NiCaVis®</td>
<td>spectral “in-situ” Online sensors for Nitrate, Carbon and TSS measurement for wastewater control</td>
</tr>
<tr>
<td>2005</td>
<td>System 182</td>
<td>compact 2 channel transmitter</td>
</tr>
<tr>
<td>2006</td>
<td>VARiON® 700 IQ</td>
<td>ammonium and nitrate multisensor with automatic compensation of interference ions</td>
</tr>
<tr>
<td>2006</td>
<td>MIQ/Blue PS</td>
<td>module for radio connection</td>
</tr>
<tr>
<td>2007</td>
<td>FDO® 700 IQ</td>
<td>optical D.O. sensor</td>
</tr>
<tr>
<td>2008</td>
<td>MIQ/TC 2020 XT</td>
<td>terminal/controller with USB and dual-processor function</td>
</tr>
<tr>
<td>2008</td>
<td>System 182 XT-4</td>
<td>perfect for up to 4 sensors</td>
</tr>
<tr>
<td>2012</td>
<td>UV-VIS sensors - Next generation</td>
<td>CarboVis®, NitraVis® and NiCaVis® sensors with the optical design, integrated ultrasonic cleaning technology and high-tech materials</td>
</tr>
<tr>
<td>2012</td>
<td>IFL 700 IQ</td>
<td>interface level measurement for sludge management</td>
</tr>
<tr>
<td>2013</td>
<td>P 700 IQ</td>
<td>PO4 analyzer</td>
</tr>
<tr>
<td>2014</td>
<td>DIQ/S 181</td>
<td>controller for 1 sensor</td>
</tr>
<tr>
<td>2014</td>
<td>MIQ/MC3</td>
<td>controller with PROFINET</td>
</tr>
<tr>
<td>2015</td>
<td>MIQ/WL PS</td>
<td>module for radio transmission</td>
</tr>
<tr>
<td>2016</td>
<td>DIQ/S 282/284</td>
<td>system for up to 4 sensors and remote access via IQ Web Connect</td>
</tr>
<tr>
<td>2017</td>
<td>MIQ/TC 2020 3G</td>
<td>Terminal with colored display</td>
</tr>
<tr>
<td>2019</td>
<td>Alyza IQ</td>
<td>new generation of wet chemical analyzers for NH₄ and PO₄</td>
</tr>
<tr>
<td>2020</td>
<td>System 281</td>
<td>Modern controller for one single sensor</td>
</tr>
<tr>
<td>2020</td>
<td>Terminal IQ</td>
<td>Cost-effective display and operation unit</td>
</tr>
<tr>
<td>2021</td>
<td>Color Sensors</td>
<td>For continuous color measurement</td>
</tr>
</tbody>
</table>
www.xylemanalytics.com
News around the clock

Our new website is designed in the Xylem colors and summarized under the web address www.xylemanalytics.com. This website brings together several Xylem Analytics key lab & field brands: WTW, SI Analytics and Bellingham + Stanley. We are presenting you a broader product range with additional brands as well as service and information about the application of our products. Directly request a quote for your required products. We are adding and optimizing its content continuously.

New products
Take a look: Here you can find new products, developments, innovative measurement and analysis instruments, helpful accessories, useful system extensions, special sets, and much more.

Applications
On our website you will find the solution to your measurement tasks in research, analysis and quality control - and additionally many application.

Downloads
Are you looking for an operating manual, application report, or do you need a certificate? Everything is provided for you in our download area.
WTW - Laboratory and Field Instrumentation

The product portfolio includes products for multi-parameter measurement, pH, ORP, ion-selective, oxygen, conductivity, BOD and depletion measurement, as well as meters for photometry, turbidity measurement and colony counts.

Particularly interesting for the analysis and monitoring of wastewater (in municipal wastewater treatment plants) and the perfect complement to WTW’s process instrumentation:

Are you interested?
Please order the new WTW catalog “Lab & Field Instrumentation”!

photoLab®
SERIES

- OptRF - the revolutionary optical reagent free measurement of COD, nitrate and nitrite
- Photometric tasks for routine to special applications from water to wine
- PC-driven color measurement for quality control - from CIE to Gardner

OptRF - faster as the fastest digestion

The photoLab® 7000 series

OxiTop®

More than just BOD

OxiTop®-IDS for all applications of respirometric measurements

Regardless whether aerobic or anaerobic examinations, because of its versatility the OxiTop®-IDS is suited for both. All heads can be used independently from any meter for normal BOD measurements between one and seven days.

The new measuring head OxiTop®-i

Respirometric BOD secure, easy, convenient: direct input of sample volume, display of the curve at the head and call-up of interim values.
Portable Meters

The digital MultiLine® IDS series and the proven analog ProfiLine family

There are meters for digital and for conventional sensors. All of them are equipped with a closed, easy to clean silicone keyboard that can easily be operated while wearing gloves.

The MultiLine® IDS series are digital multi-parameter meters for pH, ORP, dissolved oxygen, conductivity and turbidity. They have a color graphic display, a large memory, two USB inputs, up to three universal sensor inputs and support GLP compliant measurements through automatic documentation. Furthermore, the digital portable meters are ready for wireless communication between meter and sensor.

The ProfiLine portable meters work with analog sensors. They are available as single or multi-parameter meters for simultaneous measurement of two parameters. Basic models are designed for routine measurement without data logging functions, but there are also meters available with memory and USB interfaces for data transfer to laptop or PC.

SI Analytics – Process Electrodes

We offer a wide range of electrodes especially for the challenges in industrial processes (e.g. pharma, cosmetics and detergents) as well as food and beverage productions:

Our electrodes are customized to the requirements of your applications and are known for their quality, reliability and long durability. We fulfill this demand by manufacturing our electrodes with the greatest precision and a great measure of care following the most modern manufacturing methods in Germany. Every single electrode must meet the strict quality guidelines of our final inspection.

Are you interested? Please order your copy of the SI Analytics catalog „Process Equipment“!
Are you interested in Level Measurement or further Application?

We're here to help:
+49 881 1830
Info.WTW@xylem.com

Our Brands

Xylem is a leading global water technology company committed to developing innovative technology solutions to the world’s water and critical infrastructure challenges.

To learn more about all of Xylem’s brands, visit www.xyleminc.com/en-us/brands/
Xylem Analytics
Capabilities of Proven Brands

Xylem’s analytics business is an expanding family of long-established, leading brands for quantitative and qualitative analysis of samples. Our commitment to our customers is to provide them with the best tools available to solve their measurement challenges in processes, in the field, the laboratory or wherever they may be.

While serving a wide range of industries including agriculture, energy, source water, wastewater, drinking water, groundwater, R&D, ocean monitoring, food & beverage, life sciences and more, we have an extended depth of product offerings and applications expertise in four key industries **Wastewater, Ocean/Costal, Surface Water** and **Food & Beverage**.

Xylem provides the right solutions

Xylem offers intelligent and innovative system solutions for all water challenges. With our premium brands we are focusing on water and wastewater for Transport, Treatment, Analyzing and Monitoring. Let’s solve water together. Xylem has the answers for your needs, your requirements and your questions. Talk to us!

INDUSTRIAL:
Processing water for heating, cooling, cleaning, circulating and mixing to industrial facilities. Key markets include: oil and gas, mining, food and beverage, pulp and paper; aquaculture; marine; car washes.

COMMERCIAL:
Water supply and HVAC heating and cooling systems to commercial properties, including apartment buildings, retail stores, hospitals and hotels.
Water & Wastewater Transport

Xylem pump systems draw water from sources and transport it to treatment plants. Xylem pumps move water from treatment plants to storage facilities, and on through the distribution system to consumers and end users. Once clean water has served human needs, Xylem pumps transport wastewater to treatment stations.

Water & Wastewater Treatment

Xylem filtration and disinfection technologies clean and purify water before it enters the system. Xylem biological, filtration and disinfection treatment equipment removes contaminants from wastewater before it is reused (e.g., for irrigation, industrial cooling, recharging groundwater aquifers) or returned to the environment.

Analysis & Measurement Instrumentation

Xylem analytical systems test and ensure water quality. Xylem analytical systems measure water quality and monitor the environment.

RESIDENTIAL:
Water supply and HVAC heating and cooling systems to homes.

AGRICULTURE:
Irrigation to farms, golf courses and turf applications.
Xylem Watermark

verbessert den Zugang zu sauberem Wasser und klärt in Schulungen über Wasserprobleme auf


**Auf dringende Notwendigkeiten fokussiert.**
Wir wollen messbare Ergebnisse in drei Bereichen schaffen:

- Schul- und Gemeindeprojekte – Durchführung von Schulungen zu sauberem Wasser, Sanitäreinrichtungen und Hygiene (WASH)
- Katastrophenhilfe – Bereitstellung von Wasser nach Notsituationen
- Verringerung des Katastrophenisroskos – Sicherung des Wassers in gefährdeten Gebieten

Einbeziehung unserer Mitarbeiter.
Wir verstärken die Ergebnisse von Watermark durch unser Mitarbeiterbeteiligungsprogramm. Freiwilligenarbeit und finanzielle Beiträge unserer Mitarbeiter fördern unsere nachhaltigen Lösungen.

Setzen Sie Ihr Zeichen. Für weitere Informationen über Watermark besuchen Sie bitte xylemwatermark.com

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Setzen Sie Ihr Zeichen. Für weitere Informationen über Watermark besuchen Sie bitte xylemwatermark.com

Wichtige Hinweise

**Allgemeine Informationen**

2. Zubehör und Ersatzteile für ältere Gerätetypen bitte gesondert anfragen.
3. Um unseren Kunden Mindermengenzuschläge zu ersparen, liefern wir Verbrauchsmaterial in praxisbewährten Mindestmengen.

**Technische Änderungen**

Die technischen Beschreibungen entsprechen dem derzeitigen Stand der Produkte. Änderungen aufgrund technischen Fortschritts sind möglich.

**Abbildungen**

Wir weisen darauf hin, dass die Abbildungen der Veranschaulichung dienen sollen. Abweichungen bezüglich der Beschreibung und der Abbildung sind deshalb möglich.

**Haftung**

Für Druckfehler, Schreibfehler oder Übertragungsfehler in diesem Katalog kann keine Haftung übernommen werden.

*Quelle: UNICEF/WHO

Ausgabe November 2019
1) Das Gewebe in Pflanzen, das Wasser von den Wurzeln nach oben befördert; 2) ein führendes globales Wassertechnologie-Unternehmen.


Weitere Informationen darüber, wie Xylem Ihnen helfen kann, finden Sie auf www.xylem.com