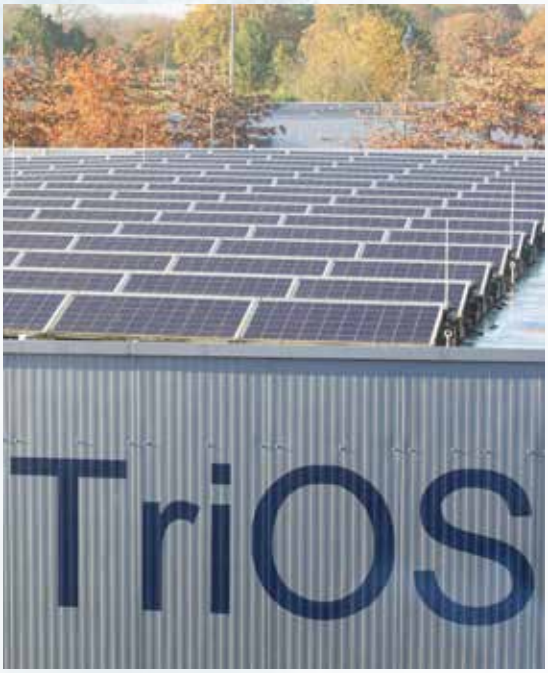
TriOS
Optical Sensors

PRODUCT PORTFOLIO

Sustainability

We are proud that not only do our products contribute to environmental research and conservation, but that our company is committed to sustainability and offsetting our own emissions.

As a company in the environmental and water industry, we are aware of the impact that humans have on nature. Therefore, as an industrial company, we place great importance on being sustainable and in harmony with nature. For this reason, the company site is designed to create an energy-efficient and natural landscape using solar energy and a variety of plants.

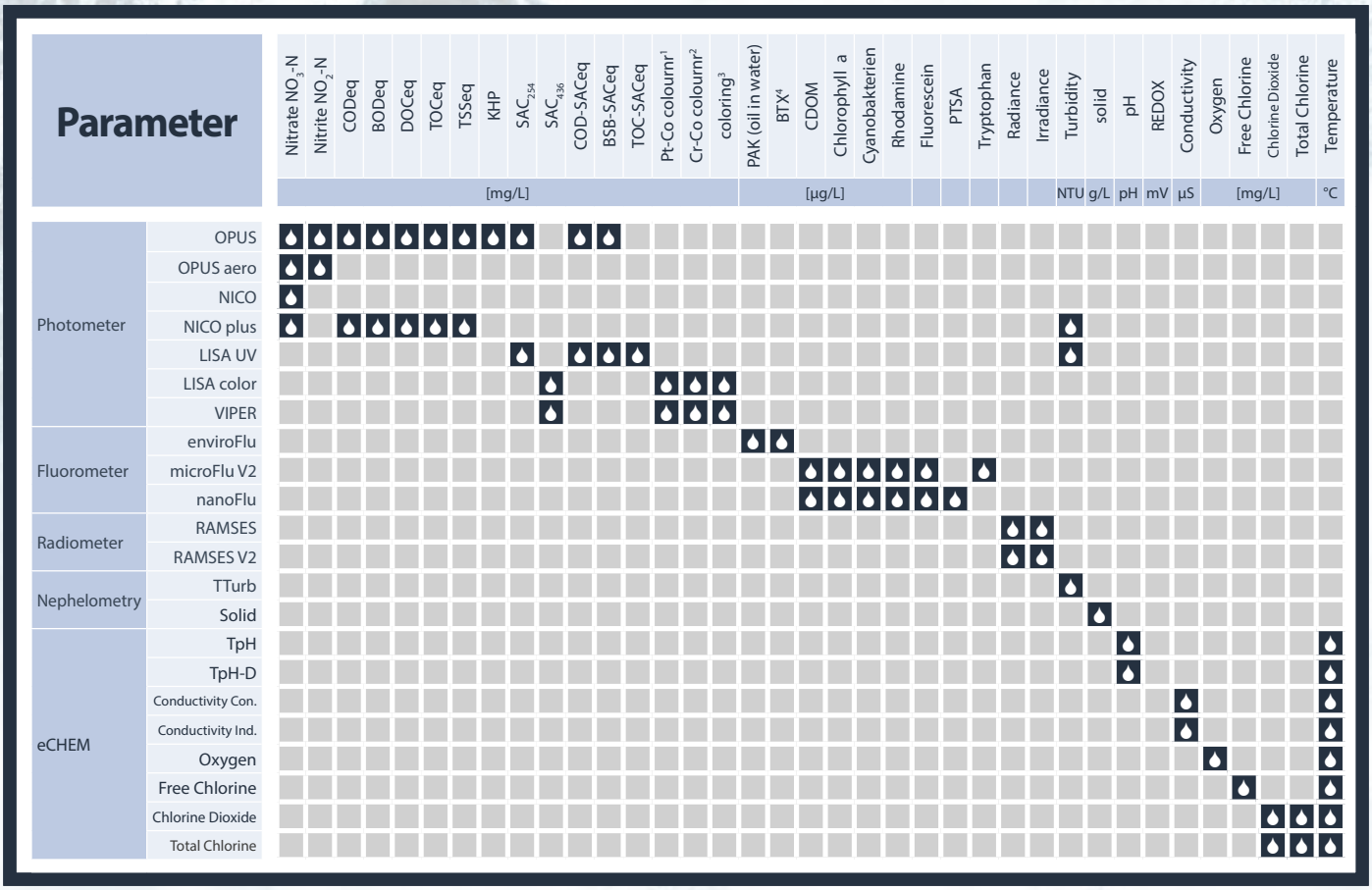


TriOS

TriOS Mess- und Datentechnik GmbH is an independent, owner-managed company that was founded in Oldenburg in 1998 and is now headquartered in Rastede. Since then, TriOS has become an established manufacturer of high quality optical measurement technology and one of the leading companies in the field of optical immersion sensors for water treatment. Although the company's roots lie in radiometry, we have managed to expand our portfolio to include photometry, fluorometry and eChemistry. TriOS offers its customers not only individual measurement sensors, but also complete system solutions for applications in different segments.

TriOS combines all production processes at its location in Rastede, Germany. Starting with research and development, the production of parts in the mechanical and electronic workshops, up to the final product design, every step is owned by TriOS. We live an active exchange of information, skills and ideas between all departments, creating a diverse pool of expertise and creativity. We also place great emphasis on the use of high quality materials and precise construction in all production processes.

Discover the variety of the TriOS product range and convince yourself of the high quality of our sensors.



Photometer

TriOS photometers meet the highest quality standards and are manufactured from high grade stainless steel or titanium. The modular design allows us to produce different path lengths depending on the application. The optical path length can be adapted to the application at any time by using different lens sockets.
The TriOS G2 interface allows quick and easy integration of the sensor into existing process control systems or external data loggers. The sensors can be easily configured using any standard web browser on a PC, tablet or smartphone.

NICO & NICO plus

Digital, optical in-situ nitrate photometer

Based on the device platform concept of TriOS sensors such as OPUS, LISA and VIPER, TriOS introduces NICO: a low-cost UV photometer for the determination of nitrate. The three detection channels allow accurate optical determination of nitrate by absorption, taking into account turbidity and organic substances that are a problem for many products currently on the market.

An internal temperature correction increases the stability of the measurements.

Applications:
- Environmental monitoring
- Drinking Water Monitoring
- Waste Water Treatment Plants

Parameter
- Nitrate NO_3-N
- Nitrate NO_X-N

OPUS & OPUS aero

High-end UV spectral sensor for online measurement

OPUS is a high-end spectral sensor for online measurement of nitrogen and carbon compounds. By analyzing a full spectrum, OPUS is able to provide reliable measurements of NO3-N, NO2-N, organic constituents (CODeq, BODeq, DOCeq, TOCeq) and a range of other parameters.

Applications:
- Environmental Monitoring
- Drinking Water Monitoring
- Wastewater Treatment Plants
- Industrial Applications

Parameter
- Nitrate NO_3-N
- Nitrite NO_2-N
- COD_{eq}
- BOD_{eq}
- DOC_{eq}
- TOC_{eq}
- TSS_{eq}
- KHP
- SAC_{254}
- COD_{eq}-SAC_{eq}
- BOD_{eq}-SAC_{eq}

LISA UV

The state-of-the-art SAC254 sensor from TriOS

Long-lasting and energy-efficient UV-LED technology and a robust design are the outstanding features of LISA UV. Like all TriOS sensors LISA uses the unique nanocoated windows combined with compressed air flushing to achieve long operating times without cleaning.

Applications:

- Environmental monitoring
- Drinking Water Monitoring
- Waste Water Treatment Plants
- Monitoring of UV-disinfection systems

Parameter

- SAC_{436}
- COD_{eq}
- BOD_{eq}
- TOC_{eq}
- UVT
- $Turb_{530}$

LISA color

Advanced VIS absorbance photometer for measuring color

LISA offers reliable, cost-effective colour measurement. One of the key benefits of LISA Color is its ability to accommodate path lengths of up to 250mm, making it an ideal choice for high-sensitivity, low-range colour measurements. In addition, the instrument platform used in all TriOS photometers allows optical path lengths of 50, 100, 150 and 250 mm, making it easy to implement almost any application. LISA color uses two different LEDs for long-term stable measurements of SAC or colour at different wavelengths. The second channel is used for turbidity/background correction.

Applications:

- Environmental Monitoring
- Drinking Water Monitoring
- Wastewater Treatment Plants
- UV Disinfection Monitoring

Parameter

- SAC_{436}
- Color
- Pt-Co-Color
- Cr-Co-Color

Fluorometer

TriOS fluorometers are high-quality, submersible measuring instruments based on the principle of fluorescence measurement. They precisely detect and analyze the fluorescence emissions of substances in water or other media. Our sensors are able to measure a wide range of fluorescence signals, from organic substances to traces of pollutants. These instruments offer high sensitivity and accuracy in the detection and quantification of substances, making them an indispensable tool for environmental monitoring, water quality measurement and research.

microFlu V2

Submersible miniature fluorometer

microFlu V2 fluorometers are submersible miniature fluorometers for highly precise and selective measurement of tryptophan, CDOM, blue-green algae or chlorophyll. The combination of low power consumption and innovative coating of the measurement windows as an energy and environmentally neutral antifouling solution ensures long-term stability of the measurements. The instruments can be used in a wide range of applications for monitoring seawater, river water, drinking water and wastewater.

Applications: Surface Water · Lakes · Drinking Water Treatment · Raw Water Treatment · Environmental Monitoring

Parameter

- CDOM
- Chlorophyll a
- Cyanobacteria
- Rhodamin
- Fluorescein
- Tryptophan

microFlu V2 HC

Submersible miniature fluorometer for oil in water

microFlu V2 HC is an immersion probe for the measurement of oil in water. The measuring principle of UV fluorescence is much more sensitive and specific than the conventional infrared scattering or absorption methods. This makes it possible to detect even the smallest traces of PAHs, e.g. in drinking water, but also in cooling water condensates. Applications range from petrochemicals to leak detection in cooling and wastewater streams to environmental monitoring.

Applications: Surface water · Drinking water · Waste water · Cooling water · Desalination plants · Rafineries

Parameter

- PAH
- Oil in Water

nanoFlu

Online fluorometer for the determination of colorings and pigments

nanoFlu fluorometers are low-cost, submersible, miniaturized fluorometers for the highly accurate and selective measurement of CDOM (colored dissolved organic matter), chlorophyll a or phycocyanin in cyanobacteria. Long-term stability of the measurements is ensured by a combination of low power consumption and an innovative coating of the optical window as an energy efficient and environmentally friendly anti-fouling solution. The instruments can be used in a variety of applications for monitoring marine and river waters, as well as drinking water and wastewater treatment systems.

Applications:
- Surface Water
- Lakes
- Raw Water Treatment
- Drinking Water Treatment and Monitoring
- Environmental Monitoring

Parameter
- CDOM
- Chlorophyll a
- Cyanobakterien
- Rhodamin
- Fluorescein
- PTSA

enviroFlu

Fluorometer for measurements of PAH

enviroFlu-HC is a submersible sensor for oil-in-water measurement. The measuring principle of UV fluorescence is much more sensitive than the conventional infrared scattering or absorption method. This makes it possible to detect even the smallest traces of PAH's, for example in drinking water and cooling water condensates.

Applications include the petrochemical industry, leak detection in cooling and waste water streams, and environmental monitoring. The instruments are designed for stationary use in manholes, streams or pipelines as well as for mobile use with an optional handheld instrument. An innovative coating reduces fouling of the optical window and minimizes maintenance.

Applications:
- Drinking Water
- Waste Water
- Cooling water
- Rafineries
- Desalination Plants
- Pipeline Monitoring

Parameter
- PAH
- Oil

eCHEM

The TriOS eCHEM series offers a wide range of electrochemical sensors for water analysis. In addition to pH and turbidity, TriOS also offers sensors for conductivity and dissolved oxygen. All eCHEM sensors are available with a cable length of 2 m or 10 m.

TpH

Digital pH Sensor

Rugged digital pH sensor for use with TriBox controllers. Digital communication ensures secure and trouble-free signal transmission from the sensor to the controller. The high quality gel pH electrode has a porous HDPE diaphragm and is insensitive to fouling, making the sensor ideal for wastewater applications.

Applications:
- Water and Wastewater Treatment
- Coagulation and Flocculation
- Process Monitoring and Control

Parameter
- pH-Value
- Temperature

TpH-D

Digital, differential pH-sensor

Rugged, digital differential pH probe for use with TriBox controllers. The reference system of the pH electrode is separated from the measuring medium due to the closed design. This eliminates electrode poisoning. A dirt-resistant salt bridge reduces cleaning and prevents electrolyte dilution.

Applications:
- Inlet measurement for wastewater treatment plants
- Process Monitoring and Control

Parameter
- pH-Value
- Temperature

TTurb

Turbidity Sensor

The TTurb is a digital sensor for optical turbidity measurement using the 90° IR scattered light method. Depending on the sensor, it can be used in pure water up to 100 NTU and in raw, waste and process water up to 4000 NTU.

Applications: Drinking Water · Potable Water · Circulating Water · Open Water

Parameter

- Turbidity

Oxygen

Sensor for Dissolved Oxygen

This sensor is a calibration-free dissolved oxygen sensor using the luminance method. Digital value transmission to controller. No interference from H2S, reducing or oxidizing substances. Evaluation via display unit.

Applications: Surface Water · Aquaculture · Seawater · Drinking Water · Waste Water Plants

Parameter

- Dissolved Oxygen
- Temperature

Conductivity

Digital Sensor for Conductivity

Digital sensor for measuring conductivity, especially in clean media, for use with TriBox controllers and HS100 DIN rail modules. The digital technology ensures secure and interference-free signal transmission from the sensor to the controller.

Applications: Waste Water Treatment Plants · Circuits for Industry and Water

Parameter

- Conductivity
- Temperature

Analyzer

The TW Master Series is a product line specifically designed for the accurate analysis of drinking water. Starting with TW Turb as the first module, TriOS will soon introduce other parameters like Nitrate, pH, Conductivity, Dissolved Oxygen, Chlorine and also micro-Flu parameters like Tryptophan, Chlorophyll, Cyanobacteria, CDOM and PAH. The modular design allows an individual combination of parameters to meet the exact requirements of your application. All units can be installed in series in a single bypass installation.

TW Turb

Turbidity analyzer especially for drinking water application

The TW Turb-4 module is a turbidity sensor specifically designed for drinking water applications. With our high measurement accuracy of ± (5% + 0.01) and low detection limit of 0.005 FNU, it is possible to detect even the smallest changes in turbidity. Our low detection limit is achieved by our 90° light scattering method. The module is powered by our new power supply, the TW PS300.

Applications:
- Drinking Water Analysis

Parameter
- Turbidity

TW PS300

Power supply unit for connecting sensors of the TW Master Series

The PS300 is a power supply unit for connecting TW Master Series sensors. It can be connected to an interface module with functions such as relay output and analog 4...20 mA signal outputs.

Applications:
- Drinking Water Analysis

compatible with...
- TW Master Series

Controller

For immediate monitoring and control of measurement data, TriOS offers controllers that are compatible with all TriOS sensors. These measurement and control systems have various interfaces, low power consumption and a robust aluminum housing, making them suitable for all applications in environmental monitoring, drinking water, wastewater treatment plants and many other areas.

TriBox3

4 Channel Display and Control Unit

TriBox3 provides 4 sensor channels with selectable RS-232 or RS-485 function. In addition to Modbus-RTU, several other protocols are available. A built-in valve allows compressed air cleaning of the sensors. In addition, the TriBox3 offers various interfaces such as an IEEE 802.3 Ethernet interface, an IEEE 802.11 b/g/n interface, a USB port and 6 analog outputs (4...20 mA). A built-in relay can be used to trigger alarms or control external devices.

compatible with...

- Photometer
- Fluorometer
- Radiometer
- Turbidity
- eChem

TriBox mini

Digital 2-Channel Controller

Digital 2-channel controller with 2 digital sensor inputs and 2 x 4...20 mA outputs. The 2-channel digital controller is compatible with all TriOS digital sensors. All measurement and diagnostic data can be read out via a built-in web browser.

compatible with...

- Photometer
- Fluorometer
- Turbidity
- eChem

TriOS Headquarters in Germany:

TriOS Mess- und Datentechnik GmbH
Bürgermeister-Brötje-Str. 25
D-26180 Rastede
Germany

M +49 (0)4402 696700
E sales@trios.de
W www.trios.de/en

TriOS Subsidiaries:

TriOS Analytics Southeast Asia
Mr. Christian Apfel
Director Business Development Southeast Asia

M +60 12 30 63 872
E apfel@trios.de
W www.trios.de/en

TriOS Analytics Oceania
Mr. Eike Breitbarth
Director Business Development Oceania

M +64 21 02 54 59 77
E breitbarth@trios.de
W www.trios.de/en

TriOS Analytics Australia
Mr. John Moffatt
Director Business Development Australia

M +61 421 10 60 51
E moffatt@trios.de
W www.trios.de/en