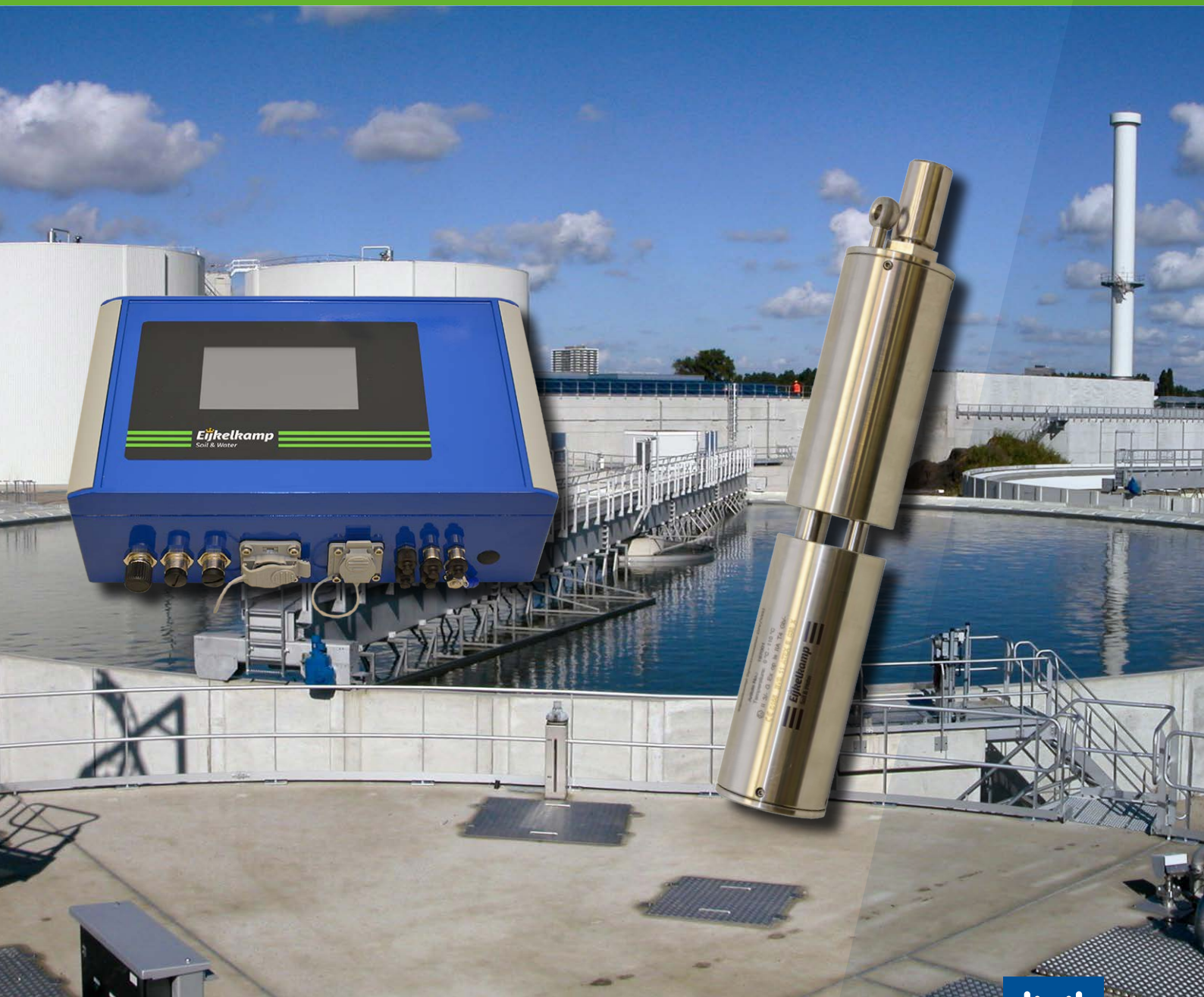


# Setting a new standard in measuring BOD/COD/TOC Eijkelkamp spectrometer system

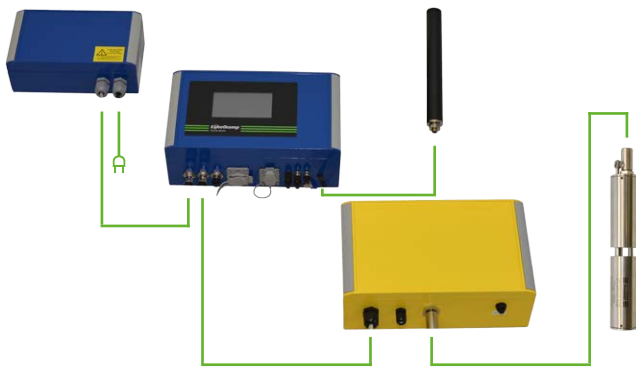


Meet the difference

## The Eijkelkamp spectrometer sets a new standard in measuring biochemical oxygen demand (BOD), chemical oxygen demand (COD) and total organic carbon (TOC). This in situ spectral analyser operates within the wavelength range 200 to 710 nm (UV/Vis) to determine various parameters in waste water simultaneously.

The result of a single measurement is an absorption spectrum over the entire wavelength range. In contrast to electrochemical sensors and multi-parameter measurements, a spectrometer is a very versatile instrument. It can be adjusted by calibration in a wide variety of applications. Ultrafiltration is not necessary, nor is sample preparation or cleaning the Eijkelkamp spectrometer. The operation of the device is possible over longer periods of time without maintenance.

The measuring head of the Eijkelkamp spectrometer is made of V4A stainless steel and includes only the optics and the compressed air cleaning system. The control and evaluation electronics are installed in the associated sensor module. As a result, the spectrometer can be used in a high temperature range (up to 110°C) and is suitable for use in the medicine or food industry, as the measuring head can be sterilised at high temperatures.



### What's in the standard set?

- GDT-Pro Control, measurement and control system
- Power supply unit
- Eijkelkamp spectrometer UV/Vis module
- Graduated cylinder and spacer
- PC software GDT-Pro Control
- Spectral quality index (SQI) calibration (real-time verification for all your measurements)

### Optional:

- Piston compressor (when no compressed air line is available)
- Customer-specific parameter calibration of spectrometer



## Waste water treatment plants

Parameters in waste water treatment plants that are observed continuously and in real time, make it possible to notice changes in concentrations and to react at once. The Eijkelkamp spectrometer is ideally suited for monitoring in different areas of treatment plants. The Eijkelkamp spectrometer can be installed in the influent, in the different basins and in the effluent of treatment plants. The measuring head can be installed directly in to the flow or basins without the need for ultrafiltration.

The Eijkelkamp spectrometer features an adjustable measuring path length, by which no water becomes too dirty for measurement. Furthermore, the integrated automatic compressed air cleaning of the measuring path makes sure that the device can reach a very long operating lifetime and service intervals.

## Areas of application

- Industry
  - Process water control
  - Food industry
  - Aquaculture and fish farming
- Environmental protection
  - Surface water monitoring
  - Land reclamation
  - Landfill leachate monitoring
- Communities
  - Sewage and purification plants
  - Drinking water monitoring
  - Process water optimisation
  - Fountain monitoring
  - Ground water management
- Research and science
  - Hydrologic and climatologic measurements on research vessels, buoys and gauging stations, etc.



## Unique features of the Eijkelkamp Spectrometer system

- Measuring path adjustment
- Extremely high temperature durability
- Cleaning of measuring path with compressed air
- Very small dimensions of the sensor head
- Salt water resistant
- Up to 100 different parameters
- No consumables
- ATEX certification class III (optional class II)



## Basic qualities of the system

- Connection to sensors and actuators of almost all manufacturers
- More than 200 sensors and actuators (Bus technology)
- Continuous measuring and data logging of the parameter's value
- Log file functionality
- PLC functionality/event handling
- Plug-and-play: simple replacement and automatic identification of sensors
- LAN, W-LAN, Internet, USB port, GPRS modem, UMTS, LTE
- SMS, e-mail
- Decentralised placement of sensors and actuators in any configuration over distances of many kilometres
- Modularity of the Eijkelkamp spectrometer system - fulfillment of the customer's needs and realisation of different requirements during changing needs
- Large assortment of software products for online presentation, visualisation and storage - remote action
- Virtual sensors: calculation of measured values in real time

## Software products

- Database application for filing and processing of measured values (SQL)
- Process visualisation in real time (master display)
- Advanced managing software (AMS)

## Advanced managing software (AMS)

- Creation of virtual sensors by input of mathematical functions
- Generation of logical and time-based linkages between sensors and actuators (PLC functionality)
- Management of notification scenarios, e.g. as SMS or e-mail

## Data logging and visualisation

The measured values can be shown online (in the Eijkelkamp Web Portal) or offline on a PC by the PC software GDT-Pro Control (SQL database).



ISA sensor	Actuators	Input modules
Ammonium (high concentration)	4 to 20 mA	4 to 20 mA
Biochemical oxygen demand (BOD)	Relay-outputs	0 to 10 V
BOD5	Serial interface RS 232	Digital I/O-port
Chemical oxygen demand (COD)	Serial interface RS 485	TTL / 24 V
Colour / Hazen	Other actuators on request	Pulse
Contamination alarm		Serial interface RS 232
Dissolved organic carbon (DOC)		Serial interface RS 485
Fingerprint		Other input modules on request
Nitrate		
Orthophosphate		
Ozone		
Phenols		
SAC254 / UV254		
Total organic carbon (TOC)		
Total suspended solids (TSS)		
Turbidity		
Separate sensors for: temperature, conductivity (salinity) dissolved oxygen, pH, redox, pressure, discharge; other parameters on request		
Virtual sensors		

## Compact, all-purpose spectrometer measuring head

### Properties

- Optical sensor linked by fibre optic to the analysis unit
- Recording across the complete absorption spectrum 200 nm – 710 nm
- Suitable for a wide temperature range
- Sensor adaptable to different media with an easy to adjust measuring path length (0.5 – 20 mm)
- Storage of raw data and calibrated data
- Calibration adjustment by remote maintenance
- Software for calibration and service
- Up to 100 different parameters
- Cleaning of measuring path with compressed air
- Easy installation
- High cost-efficiency - low maintenance

### Technical data

Measuring principle	UV/Vis spectral analysis
Wave length range	200 nm to 710 nm
Measuring path length	0.5 mm to 20 mm
Sampling rate	>30 s (> 5 sec optional)
Light source	Xenon pulsed light
Material	Stainless steel (material no. 1.4404) (optional titanium)
Ambient temperature	0 °C ... +110 °C
Ambient pressure	Max. 6 bar
Weight	1.5 kg



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