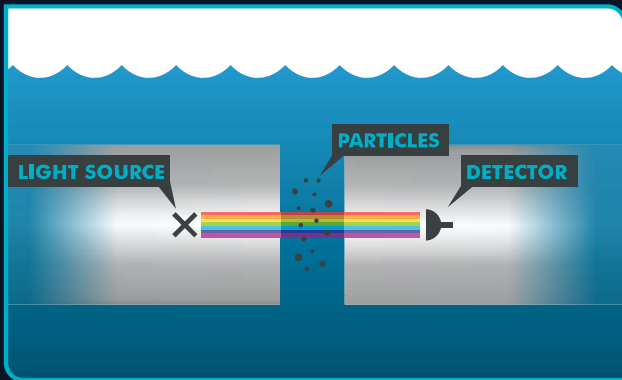
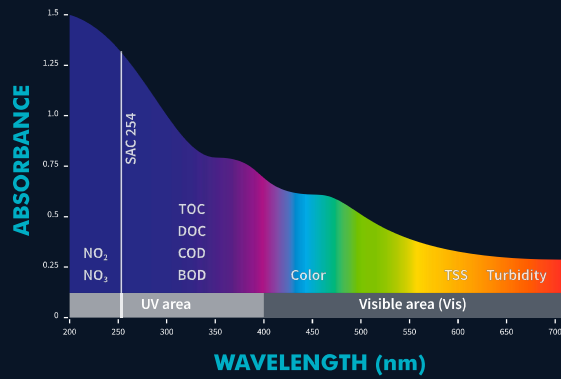


Introduction to UV/Vis

Measurement Principle



Parameter Examples



From Raw to Absorbance Spectra



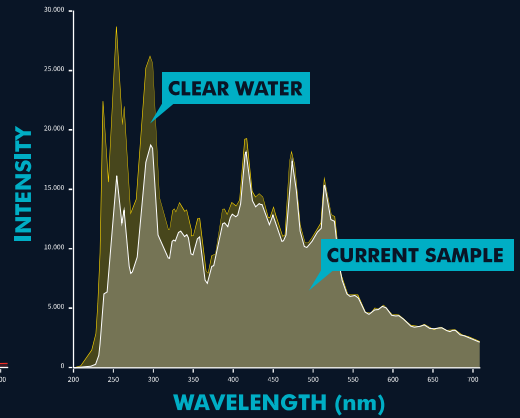
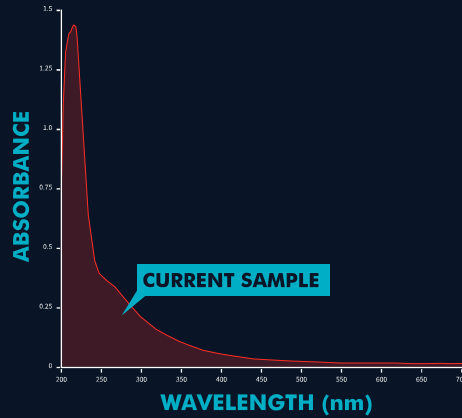
Clear Water Raw Spectrum = Detected light in clear water, saved as reference



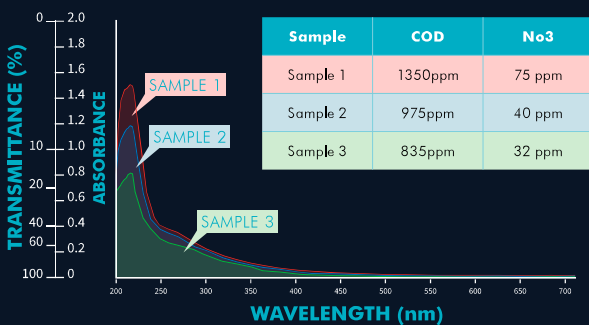
Current Raw Spectrum = Actual detected light



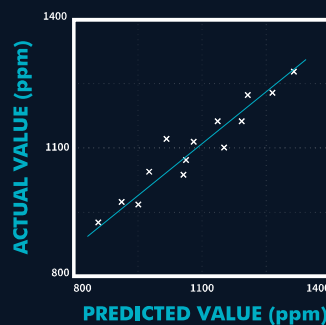
$$\text{Absorbance} = \log_{10} \left(\frac{\text{Current Raw Spectrum}}{\text{Clear Water Raw Spectrum}} \right)$$



From Absorbance to the Parameter



Chemometric Modelling



$$\text{COD} = -5.05 + 388.44 * \text{Absorbance (282nm)} - 6123.48 * \text{Absorbance (436nm)} + 5564.12 * \text{Absorbance (448nm)}$$

*All sensors included except ISE's (Ammonia/nitrate/chloride)

*Further parameters on request



UV/Vis Spectrometer System

The only Site Specific Calibration UV/Vis Spectrometer System

The intelligent spectral analyser ISA provides the simultaneous acquisition of multiple parameters with only one sensor in a small form factor. This compact UV/VIS sensor provides both standard water quality parameters and additional substances and water properties applying modern chemometrical methods.

The detection is not limited to a few bands, instead the whole spectrum from ultraviolet to near-infrared (200-720nm) is detected and analysed. Solutes, suspended matter and other water properties can be characterised thoroughly. This is not limited to common values like e.g. nitrate, organic carbon (TOC) or chemical and biological oxygen demand (COD, BOD) since modern chemometrical methods are permitting the assay of various other components.

The calibration monitoring feature based on a spectral quality index (SQI) is a new technology introduced to absorption spectroscopy by Go-Systemelektronik. This allows an automatic adaptation to water matrix variances. With this there is a significant increase in measurement reliability and with this a lower risk of false alerts in water monitoring systems. Another unique feature is the possibility to quickly mechanically adjust the optical path length, without special tools.

Benefits

- ◆ One Sensor - Wide range of parameters
- ◆ Simplest calibration
- ◆ Measurement path length 0.5 - 20 mm continuously adjustable
- ◆ ATEX Category 3 [Category 2 optional]
- ◆ Ready for network based data processing and control technology [BlueGate]
- ◆ Monitoring function
- ◆ Calibration monitoring (SQI)

- ◆ Intelligent event handling
- ◆ Quality control
- ◆ Alarm systems
- ◆ Analysis of trends
- ◆ Control of water treatment
- ◆ Early detection of discharge (fingerprint)
- ◆ Process optimisation

Parameters

- ◆ Ammonium
- ◆ Biochemical oxygen demand (BOD)
- ◆ Chemical oxygen demand (COD)
- ◆ Total organic carbon (TOC)
- ◆ Dissolved organic carbon (DOC)
- ◆ Total suspended solids (TSS)
- ◆ Nitrate
- ◆ Orthophosphate
- ◆ SAC 254nm

Product Variants

The ISA UV/Vis Spectrometer is available in different variants. The ISA complete systems in combination with a BlueBox TS measuring- and control system allow for a stand-alone operation. GO Systemelektronik also offers a portable mobile version for flexible applications. The battery-powered system is designed for an autonomous operation on-site. ISA Module variants can be integrated into existing measuring systems and enable their expansion through the CAN bus interface. Depending upon the application requirements the ISA UV/Vis Spectrometer is available either as an in situ measuring head for immersion measurements or as a flow through fitting.

Functions & Features



MONITORING FUNCTION



AUTOMATED CLEANING



CALIBRATION MONITORING (SQI)



ATEX CERTIFIED



INTELLIGENT EVENT HANDLING



CLOUD DATA SERVICE



ADJUSTABLE OPTICAL PATH LENGTH



DEPLOYABLE UP TO +110 °C



Application Areas



Drinking Water

Quality control
Alarm systems



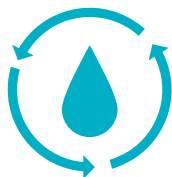
Wastewater

Influent Monitoring
Bioreactor Monitoring
Effluent Monitoring



Process Measurement & Control Technology

Process monitoring in industrial facilities
Control of process water treatment



Environmental Monitoring

River water
Surface water

Technical Specifications

System	UV/Vis spectrum 200 - 720 nm
Measuring principle	Spectral analysis
Optical measuring path length	0.5 - 20 mm
Sampling rate	≥ 3 s
Light source	Xenon pulse light

Measuring head

Material	Stainless steel 1.4404 / Titanium [optional]
Operation temperature range	0 °C to +110 °C
Weight	1.5 kg
Dimensions	Length approx. 230 mm; Ø 44 mm
IP protection class	IP 68

