PRODUCT
DATASHEET '25

ADVANCE ANALYTIK

REVOLUTIONIZING ONLINE MONITORING SOLUTIONS

OPTICS 1000 MULTI-PARAMETER

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OPTICS-1000

ADVANCE ANALYTIK

Optics 1000 Multi-Parameter

The Optic 1000 Multi Parameters is a high-performance online water analyser that provides accurate and reliable measurements upto 7 parameters for a wide range of water quality parameters such as Ammonium, Nitrates, Nitrites, Total Nitrogen, Phosphates, Total Phosphates, Organic Matter [COD, BOD, TSS], Total Organic Carbon, Sulfides, Sulfites, Total Sulfur, Total Suspended Solids, Turbidity, Color, Chlorine, Chlorine Dioxide, Hydrocarbon, Aromatic Compounds, Phenol, Dissolved Oxygen, Conductivity, Ozone and pH. Designed with state-of-the-art optical technology, it ensures exceptional stability, low operating costs, and high precision for various industries, including wastewater treatment plants and river monitoring stations. This device offers versatility for a wide range of applications also, the user-friendly interface enables user to pick any 7 parameters of choice to be added in this modular analyser.

Key Features

- **Multi-parameter monitoring: Simultaneous measurement of organic matter, nitrate, color, turbidity, and more.**
- **Advanced Optics: High-resolution optics with a scanning wavelength range from 180 to 750 nm.**
- **Durability: Built-in automatic cleaning system with long-lasting lamps.**
- **Modular Design: Expandable with external probes for additional measurements like pH, conductivity, and dissolved oxygen.**
- **User-Friendly Interface: Large, intuitive touch screen for easy operation and maintenance diagnostics.**

made in HUNGARY

1 YEARS WARRANTY

Our analyzers come with a 1-year parts warranty, provided they are used under normal operating conditions.

TÜVRheinland CERTIFIED

IP65

OUR MEASUREMENT TECHNOLOGY

UV VISIBLE SPECTROSCOPY [Internal Measurement]

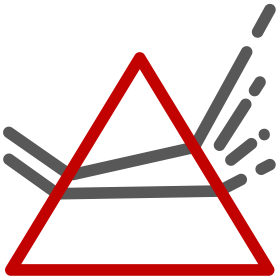
- UV spectroscopy enables rapid, reagent-free analysis of key water quality parameters.
- UV-COD measures oxidizable organics via absorbance.
- UV-BOD estimates biodegradable content through UV absorbance.
- UV-TSS detects suspended solids using broader UV absorbance and scattering.
- UV-TOC quantifies total organic carbon by measuring absorbance.
- These methods allow real-time monitoring, high sensitivity, and reduced lab time in environmental applications.

By leveraging a high-resolution spectrograph combined with advanced mathematical processing, this method achieves heightened precision and selectivity, enabling us to attain superior levels of accuracy and specificity.

The measurement principle relies on UV absorption spectrum according to Beer-Lambert's Law, where the calculation of the absorption spectrum involves determining the difference between the incident light (IT0) received on the reference (zero) and the transmitted light (ITS) passing through the sample.

Absorbance (A) is determined using the formula: $A = \log(IT0 / ITS)$

The relationship between the concentration of molecules (c), the absorbance spectrum (A), and the optical path (l) of the measuring cell is linear.

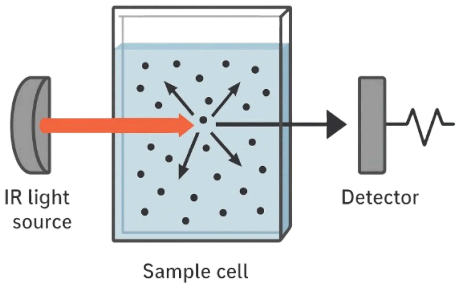


The absorption coefficient (ε) is defined by the formula: $\varepsilon = A / (lc)$.

UV VISIBLE SPECTROSCOPY [External Measurement]

NEPHELOMETRY- TURBIDITY/TSS

(infrared) nephelometry is a technique used to measure Total Suspended Solids (TSS) in a liquid medium, representing the content of suspended matter that disrupts the fluid. This measurement adheres to the ISO 7027 / EN 27027 standard. During the process, an IR light beam traverses the sample and scatters in various directions. A detector then transforms the scattered light's intensity into an electrical signal. The turbidity value increases with higher light intensity.



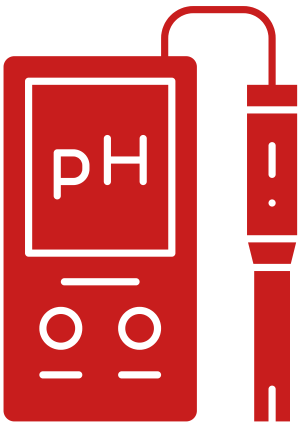
VISIBLE FLUORESCENCE - DO

This method uses the quenching phenomenon of oxygen to calculate the level of DO. Fluorescence from a fluorescent material excited by light from a blue light-emitting diode (LED) is quenched by oxygen passed through a DO permeable layer. The higher the DO level is, the stronger the quenching phenomenon is and the less fluorescence the detector (light-receiving diodes) detects.

POTENTIOMETRY - PH

The pH of a solution is determined as the negative logarithm of the molar concentration of hydronium ions (H_3O^+). The voltage between the reference and sensing half-cells is governed by the Nernst equation:

$$V = V_0 + \left(\frac{RT}{nF}\right) \ln\left(\frac{[H_m^+]}{[H_{ref}^+]}\right)$$



Where :

- V_0: Voltage of the reference half-cell
- R: Ideal gas constant
- T: Absolute temperature
- n: Valence
- F: Faraday constant
- [H⁺_m]: Concentration of H⁺ ions in the sample
- [H⁺_ref]: Reference H⁺ concentration

Absorbance (A) is given by the equation: $A = \log(I_0/I)$.

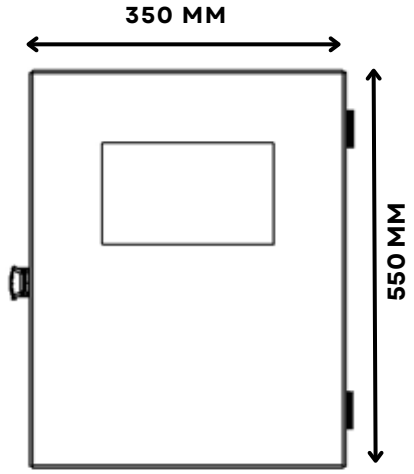
The measurement method is based on the potential difference between two half-cells (reference and sensing). These half-cells consist of a conductor immersed in an appropriate electrolyte solution, separated by a conductive glass membrane. Typically, both half-cells are housed within a single electrode.
At 25°C, one pH unit corresponds to a potential difference of 59.16 mV. For pH 7, the output is 0V at all temperatures.

Parameter Specification of Optic 1000 Multi-Paramter

UV SPECTROSCOPY	
UV-BOD	0 ... 1000 mg/L*
UV-COD	0 ... 1000 mg/L*
UV-TSS	0 ... 1000 mg/L*
UV-TOC	0 ... 1000 mg/L*
Upto 3000 range is availabe on request	
NEPHELOMETRY	
Total Suspended Solids – TSS	0.1 ... 10000 mg/L*
Turbidity – Turb	0.1 ... 100 NTU*
VISIBLE FLUORESCENCE	
Dissolved Oxygen – DO	0.1 ... 100 mg/L*
CONDUCTIMETER	
Conductivity – EC	0.1 ... 1000 mS/cm*
POTENTIOMETRY	
pH – H+	0 ... 14*

***Note** - Other ranges are available on request.*

TECHNICAL SPECIFICATION



HEIGHT :550 mm

WIDTH: 350 mm

DEPTH: 270 mm

Items	Specicifations
Display	7-inch touch screen, simple operation interface
Power supply	AC power supply: 85-500 VAC or DC power supply: 9-36 VDC
Outputs	4-20mA analog output (optional)
Relays	A relay, programmable response parameters and response values
Communication protocol	MODBUS RS485 communication function is equipped as standard, whichcantransmitthemeasured value in real time.
Fittings	Inlet: straight through to hard pipe ∅ 8 Outlet: straight through to hard pipe ∅ 12
Storage temperature	0-45°C
Operating temperature	0-50°C
Enclosure rating	IP 65
Dimensions	350*270*550 mm (L*W*H)

IP65

Sensors Compatible with Optics 1000 Multi-Paramter

ORDERING CODE	DESCRIPTION
VizSens-TurbLo	Low Turbidity Sensor Range: 0.001 - 100 NTU Cable Length - Standard 3m (Maximum can be extended to 30m)
VizSens-NO3N	Nitrate Nitrogen Sensor Range: 0-3000mg/L NO3N Cable Length - Standard 5m (Maximum can be extended to 100m)
VizSens-NH4N	Ammonia Nitrogen Sensor Range: 0.1-3000mg/L NH4N Cable Length - Standard 5m (Maximum can be extended to 100m)
VizSens-OIW	Oil in Water Sensor Range: 0-50ppm Cable Length - Standard 10m (Maximum can be extended to 50m)
VizSens-BGA	Blue Green Algae Sensor Range: 0-300000 cells/mL Cable Length - Standard 10m (Maximum can be extended to 100m)
VizSens-CPHL	Chlorophyll Sensor Range: 0-500 ug/L Cable Length - Standard 10m (Maximum can be extended to 100m)
VizSens-Turb	Optical Turbidity Sensor Range: 0.01 - 4000 NTU Cable Length - Standard 10m (Maximum can be extended to 100m)
VizSens-SS	Suspended Solids/Sludge Sensor Range: 0.01-20000 mg/L Cable Length - Standard 10m (Maximum can be extended to 100m)
VizSens-RCL	Residual Chlorine Sensor Range: 0-20mg/L Cable Length - Standard 10m (Maximum can be extended to 100m)
VizSens-ODO	Optical DO Sensor Range: 0-20 mg/L or 0-200% saturation Cable Length - Standard 10m (Maximum can be extended to 100m)
VizSens-EC (Digital)	Digital Conductivity Sensor Range: 0-20 mS/cm Cable Length - Standard 10m (Maximum can be extended to 200m)
VizSens-EC (Analog)	Analog Conductivity Sensor Range: 0-20 mS/cm Cable Length - Standard 10m (Maximum can be extended to 20m)
VizSens-pH (Digital)	Digital pH Sensor Range : 0-14 pH Cable Length - Standard 10m (Maximum can be extended to 200m)

ORDERING CODE	DESCRIPTION
VizSens-pH (Analog)	Analog pH Sensor Range : 0-14 pH Cable Length - Standard 10m (Maximum can be extended to 20m)
VizSens-ORP (Analog)	Analog ORP Sensor Range: -/+ 2000 mV Cable Length - Standard 10m (Maximum can be extended to 20m)
VizSens-TDS (Analog)	Analog TDS Sensor Range: 0-20000 ppm Cable Length - Standard 10m (Maximum can be extended to 20m)

LET'S CONNECT !

Let's work together to find a solution that works for you

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