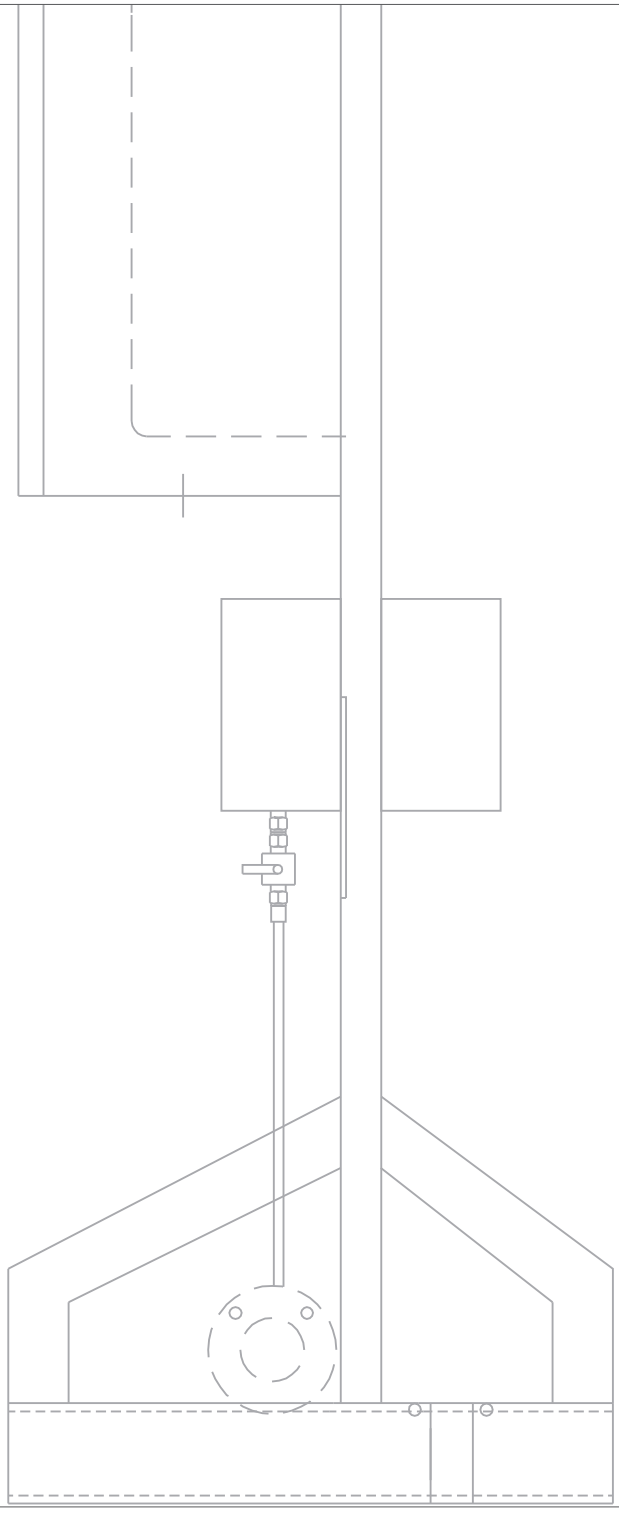
Multi-Parameter Analyzer

On Line Measurement of COD/BOD/TSS/pH for Waste Water Treatment Plants



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Multi-Parameter Analyzer

Backed by more than ten years of expertise, the UVpcx is a state-of-the-art water monitoring system specially designed for high reliability, low operating cost and small size.

Ultra-Violet spectroscopy, the most reliable and stable method, is used to analyse specific parameters like ammonia, COD, BOD, TOC, hydrocarbons, nitrate and fluorescent tracers.

Optical methods are also used for turbidity, TSS and colour while electrodes are used for pH, dissolved oxygen and conductivity.

Based on a modular design, the UVpcx can be configured as

Mono-parameter system: on many process control applications, only one parameter is critical. In this case, the UVpcx offers a cost-competitive solution.

Multi-parameter system: water chemistry is complex and to meet the regulations for drinking water, sewage and wastewater, many parameters have to be taken into account.

Designed in compliance with CE electromagnetic standards and using a watertight box, the UVpcx is the ideal instrument for industrial applications such as:

Municipal water treatment plants

Raw water treatment plants

Industrial effluents monitoring

River monitoring

Chemical, oil and food industries

Standard Methods and On-line Analysis

Standard methods are based on traditional and well-known chemical methods that are convenient for laboratory use but not applicable for on-line analysis.

The automation of such traditional methods leads to a complex system that would require high maintenance and have a poor reliability. Moreover, the cost of reagent is prohibitive and some of these are dangerous pollutants.

Also, the measuring time is generally not compatible with process control.

To overcome the above hindrances, and for stable, fast and reliable measurements, the UVpcx uses optical methods for specific parameters like ammonia, COD, BOD, TOC, hydrocarbons, nitrate, fluorescent tracers and color.

There is no drift in measurements as compared to the electrode based system.

On some applications, the results on UVpcx can be more accurate than those obtained by standard colorimetric methods that are subject to several interferences, for example chloride for nitrate and COD analysis.

COD Measuring Principle

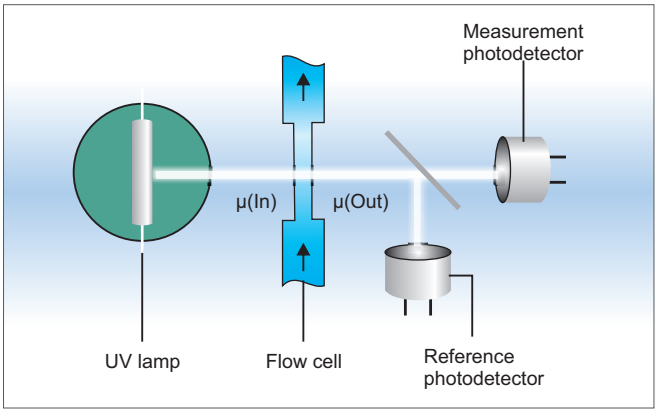
The measuring principle is based on the UV VIS Absorption Spectroscopy.

[C] = k log (Iin/Iout) eith [C]: sample concentration
k : absorption coefficient (specific to each molecule)
Iin : light intensity at the input of the sample
Iout : light intensity at the output of the sample

Turbidity, suspended solids or dirt on the flow cell is automatically compensated by a differential measurement with a second detector at a reference wavelength.

The UV absorption can be considered as an alternative method for lab COD (Chemical Oxygen Demand) when fast, reliable and inexpensive measurements with very low maintenance are required.

This method is in accordance with the DIN38404-C3 standard and can be considered as an alternative method referring to the AFNOR XPT90-210 standard.



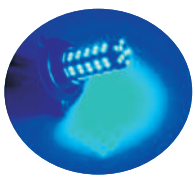
BOD Measuring Principle

The measuring principle is based on UV VIS Absorption Spectroscopy using Beer - Lambert conversion law; [C] = k log (I in / I out)

With:[C]:Sample concentration; k:UV absorption and BOD linear correlation coefficient ; I in: Incidence light intensity; I out: Transmission light intensity

10-Year Lamp Life

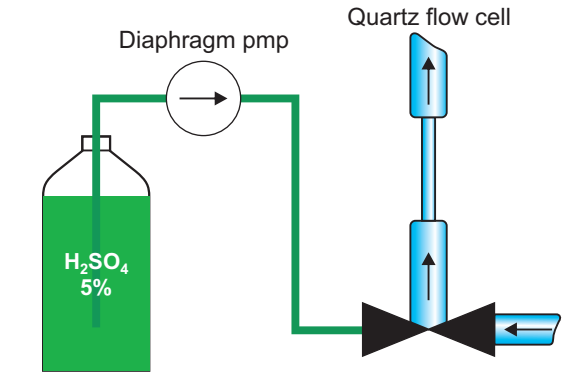
The UV xenon lamp is specified for 10^9 flashes that give more than 10 years of lifespan with a measurement every minute.



Auto Cleaning and Auto Zero Calibration System

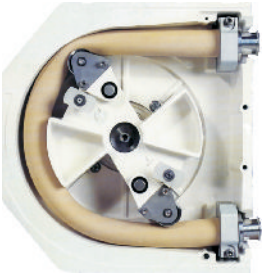
Once a day, a low cost cleaning solution (5% sulphuric acid) is automatically injected into the flow cell to clean it. An auto-zero is performed at the same time.

The autonomy is about 2 weeks with the built-in 2-litre tank. An alarm is generated if the cleaning solution tank is empty.



Sampling Pump

An optional built-in peristaltic pump can be added, to take sample directly from rivers, reservoirs or open channels with a maximum pumping height of 5 meters.



No Filtering with River Water or Waste Water

Due to large bore tubing and a German patented inlet electric-valve with pivoting armature, unfiltered water can be admitted into the UVpcx analyser with very low risk of clogging.

Specification

General	
Model	CX 1000 series
Method	COD/BOD/TSS : UV-VIS absorption dual beam spectrophotometry at 190~750nm pH : Potentiometric with combination pH sensor
Calibration	Online auto zero calibration for COD/BOD/TSS with OFFSET correction Manual SPAN calibration for COD/BOD/TSS/pH (in-place)
Operation cycle	Continuous or batch type
Cleaning	Automatic built-in cleaning function. User programmable
Operation	Reagent and chemical free analysis
Compensation	Auto turbidity and color compensation
Interferance	Independent of flow and pressure variations
Sample Conditions	
Temperature	+5 to +80 Deg. C
Pressure	0.3-1 bar (not applicable)
Flow rate	5-50 LPH (not applicable)
Filtration	Not required.
Analyzer	
Type	Advanced microprocessor based system
Accuracy	COD/BOD/SS: ± 5% - 10% of F.S. pH : ±0.1 pH.
Display type	Touch screen, alpha numeric display 240 x 128 pixels LCD with backlit
Response time	Within10 Sec
Measuring cycle	Programmable / normally 3-5 minutes
Analog output	0/ 4-20 mA. DC, isolated
Enclosure protection	Comply to IP54
Relay outputs	Dry contact alarms for high and high-high set points, monitor failure, microprocessor failure
Power supply	110- 230V AC,50Hz, 30 VA
Digital output	RS 232/ RS 485
Ambient temperature	0 to 50 Deg. C

Analyser Models

Model	COD	BOD	pH	TSS
CX1000-3912	0-300 mg/l	0-100 mg/l	0-14 pH	0-450 mg/l
CX1000-3922	0-800 mg/l	0-400 mg/l	0-14 pH	0-750 mg/l
CX1000-3932	0-2000 mg/l	0-1000 mg/l	0-14 pH	0-1500 mg/l
CX1000-3952	0-5000 mg/l	0-2500 mg/l	0-14 pH	0-2000 mg/l

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