Dissolved Oxygen Monitoring

1) What is Dissolved Oxygen (D.O.)?

Dissolved Oxygen is the amount of Oxygen Gas dissolved in Water, Seawater or other liquids.

The amount of Dissolved Oxygen (D.O. Level) is expressed in ppm (mg/L) or in % of the maximum amount, which can be dissolved (Saturation).

The range is usually 0 to 14 ppm and 0 to 100 %.

The maximum amount of oxygen, which can be dissolved in a liquid depends on the temperature and the salt content (Salinity) of the liquid and is also depending on the local Barometric pressure.

2) Why is D.O. so important?

Dissolved Oxygen is the basis of all life in Water and Seawater.

Plants and algae in oceans, lakes and rivers generate a large part of the Oxygen in the air.

The amount of D.O. in Fish tanks, Fishponds and Aquariums is essential for the well-being of Fish and Shellfish and has a significant influence on the production.

The D.O. level in rivers, lakes and coastal areas is a very good indicator for the quality of the water and the aquatic life

Effective Wastewater treatment with aerobic bacteria requires the continuous monitoring of the D.O. level in the treatment chamber.

D.O. monitoring is required in many fermenters and reactor vessels for biochemical- and pharmaceutical processes, food- and drink processing, etc.

3) How is D.O. Monitoring performed?

A D.O. sensor is immersed in the sample and produces an electrical Signal, which is related to the D.O. level.

The D.O. sensor is connected to a special Signal Converter (D.O. Amplifier), which produces an Analogue or Digital Signal suitable for Transmission and Signal Processing.

A Calibration procedure using D.O. saturated water establishes the quantitative relation between signal and D.O. level.

Correction calculations for Temperature influence, Salinity (content of dissolved salts) and Barometric pressure can be applied.

4) What are the Benefits of D.O. Monitoring?

D.O. Monitoring is a continuous process, which shows the D.O. Level at any time.
It is the first choice for most applications; random sample measurements are insufficient for measuring a parameter, which can change within a short time.

Effective Environmental Control by monitoring the conditions of Lakes and Rivers

Reliable Detection of Pollution. Nearly every serious pollution influences aquatic life and this results in a change of the D.O. level.

In production processes where D.O. is involved, monitoring the D.O. level increases the productivity and quality. That relates to Fish farms and Shellfish farms, Bioreactors, Food and Beverage processes and Wastewater treatment.

5) What are the Advantages of our System?

We offer a flexible, modular system and our customers can select a solution, which fits best to their needs.

All types of D.O. sensors can be connected to our system.

We have good relationship with D.O. manufactures in the world, can provide different types of D.O. sensor that the customers need.

Our system is very cost-effective, because we use PCs for acquiring, processing, display and storage of the data. The prices of PCs have constantly fallen within the last years.

A PC is the best suitable user interface for analytical measurements; it is a familiar, flexible and powerful tool and offers the best operating comfort.

6) Why is D.O. Monitoring important for the World?

With the Global Environmental implications Dissolved Oxygen Monitoring plays an important part in Monitoring of Biological Oxygen Demand and Chemical Oxygen Demand in Water which affect Aquatic Life.

Sources of Pollution must be detected quickly to prevent large damage and costly measures to clean up.

Fish and Shellfish production in Fish farms can be increased, by providing the best conditions in the Fish tanks and Fishponds.

EAI provides affordable and easy to use tools for D.O. measurements.