

# Dissolved Oxygen Meters

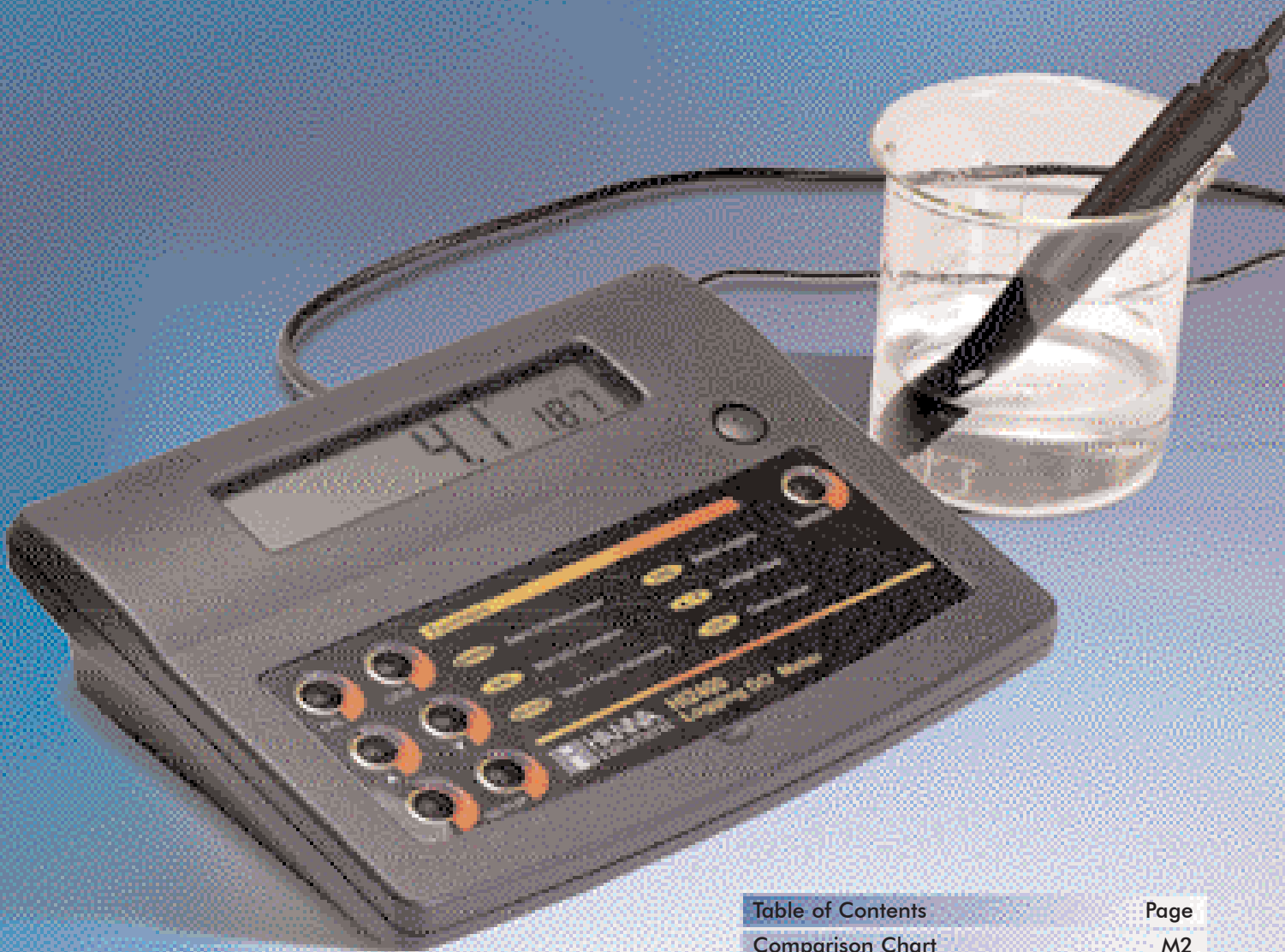


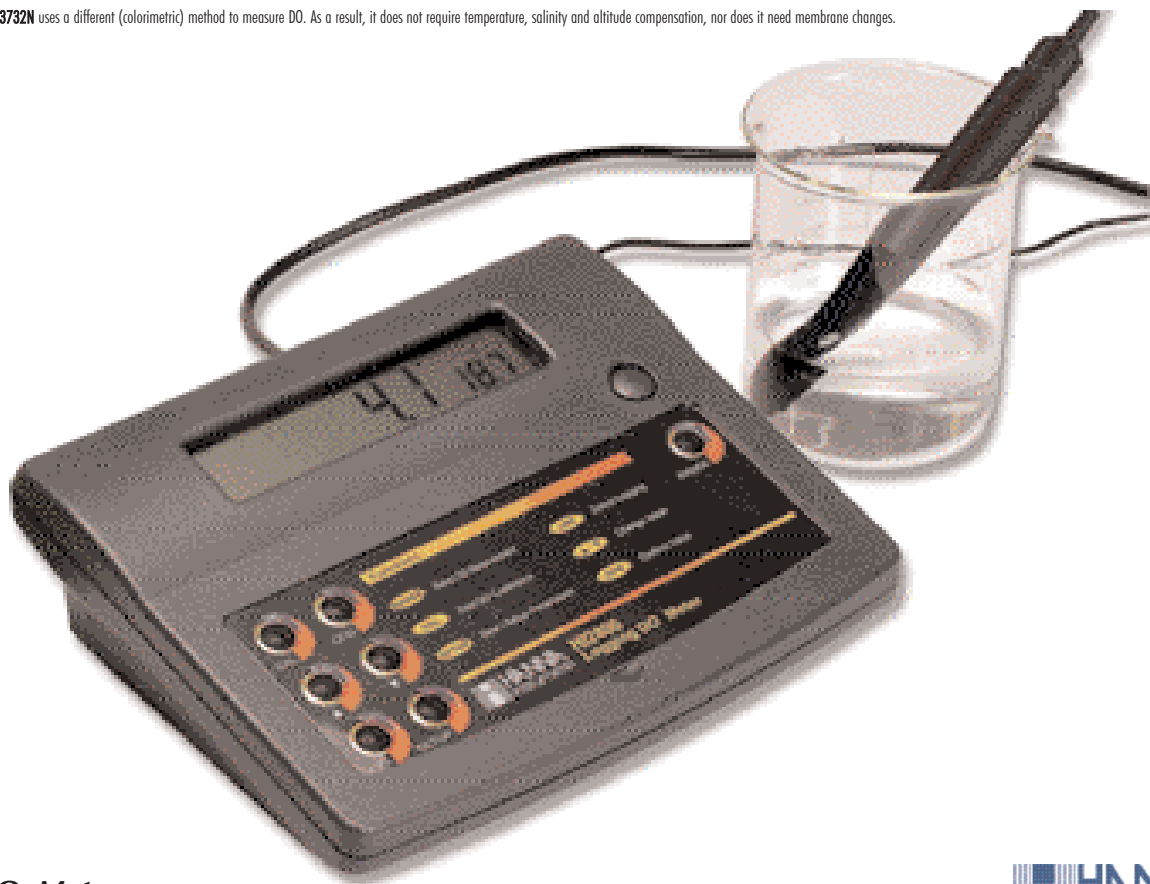
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## Comparison Chart

### Features

	HI 9146	HI 93732N	HI 8043	HI 9142	HI 9143	HI 9145	HI 9141	HI 91410	HI 2400
<b>Dissolved Oxygen Meters</b>									
0.0 to 10.0 mg/L Range		•							
0.0 to 19.9 mg/L Range				•					
0.00 to 19.99 mg/L Range			•				•	•	
0.00 to 45.00 mg/L Range	•				•	•			•
0.0 to 300.0 % O <sub>2</sub> Range	•				•	•			•
0.0 to 50.0°C Range	•		•	•	•	•	•	•	•
Precision ±1.5% F.S.	•		•	•	•	•	•	•	•
Temperature Read Out on LCD	•		•	•	•	•	•	•	•
Display O <sub>2</sub> and Temperature	•				•	•			•
Auto. Temp. Compensation	•	(*)	•	•	•	•	•	•	•
Altitude Compensation	•	(*)			•		•	•	•
Salinity Compensation	•	(*)			•		•	•	•
Automatic Calibration	•	•			•	•	•	•	•
Water-Resistant	•			•	•	•			
12 Vdc Power Socket	•				•	•	•	•	•
Built-in Printer							•	•	
Logging Capability								•	•
D.O. Probe Included	•	(*)	•	•	•	•	•	•	•
Spare Membranes Included	•	(*)	•	•	•	•	•	•	•
Hard Carrying Case	•			•	•	•	•	•	
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(1) HI 93732N uses a different (colorimetric) method to measure DO. As a result, it does not require temperature, salinity and altitude compensation, nor does it need membrane changes.





## **Dissolved Oxygen Meters**

### **Cutting Edge Technology**

HANNA instruments® uses the latest in electronic and sensor technology in its line of Dissolved Oxygen meters to bring users high performance and reliability. Being one of the few manufacturers of D.O. meters worldwide, HANNA instruments® has taken on the task of providing the industry with a diverse range of products that meet the requirements of all applications.

The polarographic probe supplied with each meter is constructed with rugged Ultem® and an easy-to-change membrane cap. The cable length varies from 2 to 20 meters (6.6' to 67'). Each probe also incorporates a built-in temperature sensor for rapid response to variations in temperature.

In addition to the conventional D.O. meters presented below, we also offer the simple-to-use HI 93732N portable instrument based on a photometric method.

HI 9143, HI 9145 and HI 9146 are the most advanced Dissolved Oxygen meters available. They use microprocessors for quick, reliable calibration.

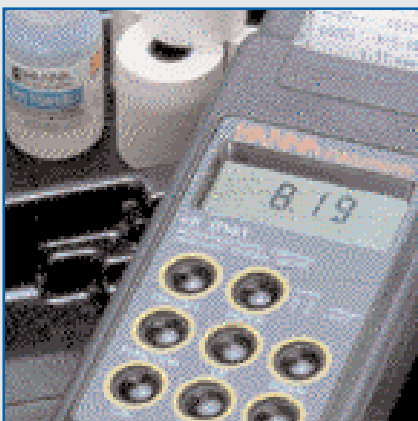
HI 9143 and HI 9146, also compensate for the effects of salinity and altitude, to assure the highest level of accuracy. A waterproof housing provides protection from humid and dusty conditions.

The new and improved models measure D.O. from 0.00 to 45.00 mg/L and from 0.0 to 300.0% of O<sub>2</sub>, so that even oxygenated water in fish farms and labs can be monitored with these portable meters.

HI 9141 is the world's first portable printing D.O. meter. The water treatment and fish farming industries are given the proper means to easily monitor and record D.O. levels.

HI 91410 is the world's first portable logging D.O. meter. Up to 8000 readings can be stored into the meter's memory for retrieval at a later date, or for RS232 transfer into a computer system through the HI 9200 infrared transmitter.

HI 2400 is the new bench logging D.O. meter, which measures, records and transmits data to a computer. The display gives step-by-step prompts for the D.O. and temperature calibration procedures. Salinity and altitude are automatically compensated and data can be logged at user selectable intervals. This meter also has an extended D.O. range for any application.



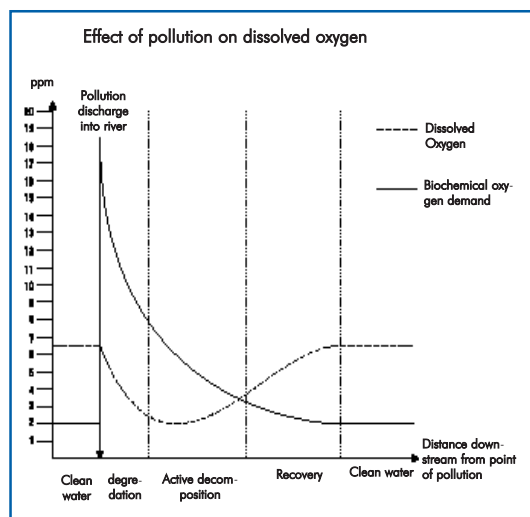
## Dissolved Oxygen Measurement

### Definition

Oxygen meters are used to determine the quantity of dissolved oxygen in liquids. Two measurement scales are commonly utilized: parts per million (ppm), or the percentage saturation (%), which is defined as the percentage of oxygen dissolved in 1 liter of water. It is necessary to determine the quantity of dissolved oxygen present in water because it is an indicator of water quality. It is, therefore, important to monitor civil and industrial wastewater where low concentrations indicate pollution.

### Applications

Oxygen meters are used for measuring and monitoring the oxygen content at the



also suitable for oxygen measurement of their heavy water.

### Principle of Operation

The conventional measurement system of D.O. consists of a meter and a Clark-type polarographic probe. The probe is the most important and delicate part of the system. The probe consists of a silver (Ag) anode wrapped with a platinum (Pt) wire that functions as the cathode. These are inserted into a protective cap filled with a potassium chloride (KCl) electrolyte solution. The cap ends in a Teflon® membrane, a gas-permeable material that allows the passage of oxygen present in the solution, but not the solution itself.

By applying a potential of 790 mV, the oxygen present in the cell is reduced to hydroxide ions (OH<sup>-</sup>) at the cathode, and silver chloride (AgCl) is deposited at the anode. This reaction provokes a current flux with intensity proportional to the quantity of oxygen present in the sample. The meter converts the current into the corresponding concentration of dissolved oxygen.

It should be noted that the solubility of oxygen is dependent on many factors including temperature, atmospheric pressure and salinity. Some of HANNA instruments® oxygen meters automatically compensate for these variables and ensure even greater accuracy.



Fish Farming



Quality Control



Water Quality



Wastewater Treatment