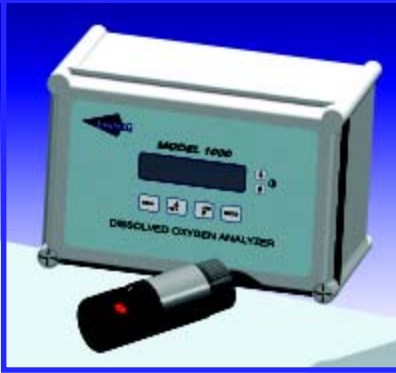


## Dissolved Oxygen Analyzer for Wastewater Treatment Plants



### *A Revolution in DO Measurement!*

**Advanced optical fluorescence technology for the measurement of dissolved oxygen in water and wastewater. Designed for the harsh conditions of the wastewater industry.**



### **Insite IG Model 1000 DO Analyzer**

The Insite IG Model 1000 dissolved oxygen analyzer is a unique system that combines advanced electronics with a solid-state optical sensor. No other dissolved oxygen system can compare with the features and benefits of this revolutionary design. It features the Model 10 sensor which utilizes an optical technique that does not consume oxygen like all standard membrane sensors.

The Model 1000 Dissolved Oxygen Analyzer is a digital instrument designed for the continuous monitoring of dissolved oxygen in water and wastewater where parts per million accuracy is required. The instrument is designed to be used with the InsiteIG Model 10 sensor. The unit will display dissolved oxygen content in 0.01 ppm resolution over a range of 0.00 to 3.99 ppm and 0.1 ppm resolution over a range of 4.0 to 20.0 ppm. Temperature is displayed in 0.1 degree Celsius increments over a 0.0 to 50.0 degree Celsius range.



The microprocessor based electronics of the Model 1000 analyzer provide a high degree of flexibility and ease of use. Calibration is not required on a routine basis, nor is calibration required after initial startup and commissioning. Two isolated analog outputs are standard. Three programmable set-point relays and one relay to control self-cleaning are also standard.

The sensor to be used with this analyzer is an optical type sensor that measures the fluorescence and quenching reactions of a ruthenium complex that is immobilized in a sol-gel matrix.

#### System Benefits

*The sensor does not use replaceable membranes or cartridges. This will significantly reduce the maintenance time required to keep the system operational.*

*There are no consumables (membranes, electrolyte, and anode) so the cost of ownership is reduced.*

*The sensor does not require routine calibration, due to the fact that there is no anode that is oxidizing, decreasing maintenance time and increasing reliability.*

*System accuracy is .05 PPM allowing for accurate monitoring of anoxic and anaerobic zones.*

*Fouling of the sensor does not have an effect on accuracy so routine sensor cleaning is not required. This decreases maintenance and increases reliability.*

*There is no need for sensor preparation or initial calibration at start-up, reducing the amount of time required to get the system operational.*

*Increased reliability of the system allows for better control of aeration saving the customer up to 30% in the cost of aeration.*

*There is no minimum flow requirement allowing the sensor to be mounted in almost any location, especially helpful in fine bubble diffuser basins where there is minimal agitation. Stagnant water does not affect accuracy!*

*The system has two isolated 4-20 (0-20) outputs, four relays, and a Modbus RTU output allowing the customer to interface with the analyzer in whatever way they desire.*

*The LCD display is backlit, and uses the high temperature and UV resistant glass and fill. There is a contrast adjust on the front panel. This will ensure that the display is always easily readable.*

*Initial setup of the analyzer is accomplished through plain English menus on the display allowing for quick, easy setup.*



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# Insite IG Model 1000 DO Analyzer

## SPECIFICATIONS

Model	Model 1000 DO Analyzer
<b>Analyzer/Transmitter Operational Data</b>	
Measuring range	0 to 25ppm
Temperature Range	0 to 50 degrees C
Ambient condition requirements	
Temperature	-40 deg C to 55 deg C
Humidity	0 to 100 percent
Altitude	0 to 10,000 feet
Display	Two-line, backlit LCD with extended temp. range UV resistant
Sensor Check	Automatic self diagnostics
Max cable length	610 meters
Power Req.	230 VAC 50 Hz
Accuracy	the greater of 1% of reading or 0.02 ppm
Resolution	0.01 ppm
Stability	0.01 ppm (per 24 hr period)
Repeatability	0.01 ppm
Temp. Drift	Not applicable
Zero Output Reading	Not applicable
Measuring range	0.0 to 25.0 ppm 0 to 50 deg C
Temp. comp.	0 to 50 degrees C
Calibration	Not required nor recommend during initial startup. Provisions for one-point in water calibration provided.
Memory backup	Yes
<b>Analyzer/Transmitter Outputs</b>	
Analog	0 to 20 or 4 to 20 mA (user selectable) for DO and Temp
Digital comm.	Modbus RTU, RS-232
Relay	3 independently programmable set point control relays and one jet clean relay. Relay 1 & 2 are Form-C with contacts rated 10/6 amps resistive load at 125/250 VAC and relay 3 & 4 are Form-A with contacts rated 10/6 amps resistive load at 125/250 VAC.
<b>Analyzer/Transmitter Mechanical Data</b>	
Enclosure Rating	NEMA 4X
Mounting Config.	Horizontal handrail Vertical handrail Wall mount
Net Weight	Shipping weight is approximately 4kg
<b>DO Sensor Data</b>	
Electrode Materials	No electrode
Electrolyte Materials	No electrolyte
Sensor Drift	Less than 1% per year
Wetted Materials	Epoxy, silicon, and polyurethane
Minimum Flow Rate	No flow required
Maximum Pressure	100 psi
Response Time	90% in less than 60 seconds
Membrane Thickness	No membrane

Principle of Operation	The sensor is an optical type sensor that measures the fluorescence and quenching reactions of a ruthenium complex that is immobilized in a sol-gel matrix.
Sensor Cable	4 conductor, 22 AWG, polyurethane jacket
Temperature Sensor	Thermistor
Cleaning System	Not required in most applications Air or water wash optional

## Maintenance Requirements

The analyzer does not require any periodic maintenance. The sensor must be kept free of debris for accurate readings. **Model 10 D.O. Sensor:** In normal wastewater aeration basins the Model 10 Sensor will not require a jet clean system; however it is important that the aqueous sample to be measured be allowed to come in contact with the measuring surface. The sensor should be visually inspected on a monthly basis to insure that rags and hair have not completely covered the measuring surface. During this time we recommend rinsing the sensor with a water hose.

In systems with high bio-slim and scaling, the integrated jet clean system is recommended to be used to prevent the slim and scale from attaching itself to the measuring surface.

Fouling conditions at wastewater treatment facilities varies considerably from plant to plant. Experience gained during the first few months of sensor operation will allow the plant operators to determine their own reasonable schedule of sensor inspection. In no case should this inspection interval exceed one year.

## ORDERING INFORMATION

IIG1000-10-25	Model 1000 analyzer with Model 10 optical sensor
<b>Options</b>	
IIGCABLE	Additional sensor cable (per meter)
IIGAM1	Analyzer mounting hardware
IIGDO1	DO Sensor mounting hardware
IIGIH1	Internal heater
IIGCA1	Compressor assembly for self-cleaning

## Also Available from the same manufacturer:

- ⇒ 3100 Portable Handheld DO Analyzer
- ⇒ Suspended Solids Fixed and Portable Analyzers
- ⇒ Mixed Liquor Analyzer for Suspended Solids & Dissolved Oxygen
- ⇒ 12V Dissolved Oxygen Analyzer for integration with remote monitoring systems

Due to continual development, specifications are subject to change without notice.

# Which optical DO technology would you prefer?

**So you need to update your Dissolved Oxygen measurement system and are at the stage of comparing EnviroEquip-supplied Insite IG DO analysers versus other manufacturers with optical DO technology.**

**Here are ten important factors to investigate and consider...**



- 1 Insite IG's DO sensor is not at all affected when exposed to direct or indirect sunlight. Sunlight will not deteriorate the sensor in anyway.
- 2 Insite IG's DO sensor has no consumables or sensor caps which require purchase and replacement on a yearly basis. The Insite IG sensor will last for up to 10 years.
- 3 Insite IG's DO sensor is very resistant to abrasion. Cleaning the sensor with a soft brush will not remove any of the sensing material.
- 4 Insite IG's DO sensor is designed for wastewater aeration basins. It was not designed by a company which primarily markets to the medical industry.
- 5 Insite IG's DO sensor is available in a dual channel system, which can accept a second DO sensor or a Suspended Solids sensor. Online measurement of Suspended Solids automates the normal practice of pulling samples from each basin at least once a day, then running labs on the sample. This is a messy, time consuming job that can be greatly reduced with online SS meters saving both time and money.
- 6 Insite IG's DO sensors are in their 3rd year of production. Acceptance of Insite's technology is widespread and there are hundred's of systems sold. The company is in a strong position.
- 7 Insite IG's DO analysers have an optional automatic cleaning system which does not have any external apparatus. There are no "rag catchers" which would otherwise cause a rapid build-up of fibrous material.
- 8 Insite IG's DO sensor can be easily calibrated in the field, even without removing the sensor from the process.
- 9 Insite IG's DO sensor has a large measuring range (0 to 25ppm); high system accuracy (+/- 0.05ppm for the entire span); and fast response time (<60 seconds to 95%).
- 10 Insite IG's DO sensor has a 2 year warranty which is supported by EnviroEquip. 30 day trials can be provided by EnviroEquip on Insite IG's equipment. Please contact EnviroEquip for further information.