

# ***MODEL 2000***

## ***DATA SHEET***

### **DUAL CHANNEL MIXED LIQUOR ANALYZER**

**Dissolved Oxygen—Suspended Solids—Any Sensor Combination**

***NOT DAMAGED BY DIRECT OR INDIRECT EXPOSURE TO SUNLIGHT***

The Insite Instrumentation Group Model 2000 dual channel analyzer is a unique system that combines advanced electronics with solid-state, optical sensors. The analyzer will accept any combination of DO or SS sensors and automatically configure for the correct operation. The system allows for flexible and economical mixed liquor monitoring and control. The DO sensor does not need membranes, fill solutions, nor routine calibrations and maintenance. The SS sensor is based on near infrared technology eliminating inaccuracies caused by changes in the process color or changes in particle size.

#### **FEATURE**

Optical sensor technology

#### **BENEFITS**

Not affected by process color changes (SS)  
No routine calibration (DO)  
No routine sensor cleaning (DO+SS)  
Extremely accurate (DO+SS)

#### **FEATURE**

Advanced microprocessor design

#### **BENEFITS**

Automatic error detection  
Analyzer self test  
Simple user interface  
Simple start-up  
Integrated self cleaning



**MODEL 2000 DUAL CHANNEL  
w/ MODEL 10 DO SENSOR  
& MODEL 15 SS SENSOR**

### ***FLUORESCENCE DISSOLVED OXYGEN —THEORY OF OPERATION***

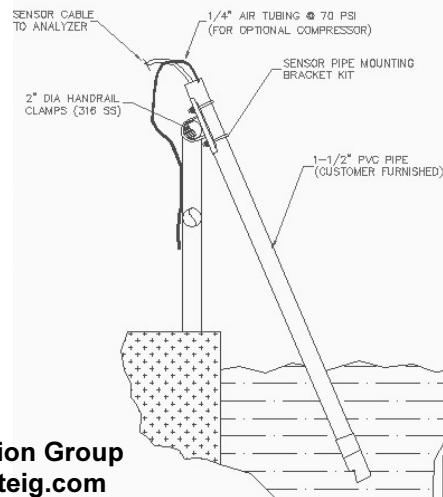
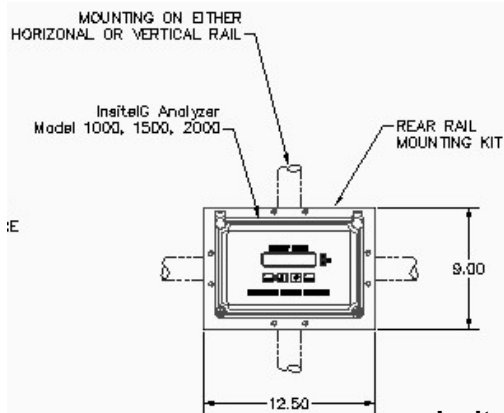
A very specific energy wavelength is transmitted to a ruthenium compound immobilized in a sol-gel matrix. The ruthenium will absorb this energy, changing the outer electron's energy level. The electron will then collapse back to its original energy state, emitting the energy as a photon with a different specific wavelength. This is called fluorescing. If the intensity of the transmitted wavelength is tightly controlled, the amount of fluorescing is both predictable and repeatable. If oxygen molecules are present the amount of fluorescing is reduced, referred to as fluorescence quenching. By measuring the amount of quenching it is possible to determine the amount of oxygen present.

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# MODEL 2000 SPECIFICATIONS

Measuring Range	<b>DO</b> — 0 to 25 ppm <b>SS</b> — 0 to 30,000 mg/l
Accuracy	<b>DO</b> — 1% of reading or .02 ppm, whichever is greater <b>SS</b> — 3% of reading
Sensitivity / Resolution	<b>DO</b> — .01 ppm below 4.00, .1 ppm above 4.0 <b>SS</b> — 1 mg/l below 1000 mg/l 10 mg/l between 1,000 and 9,999 mg/l 100 mg/l above 10,000 mg/l
Repeatability	<b>DO</b> — .01 ppm <b>SS</b> — +/- 1%
Sensor Drift	Less than 1% per year
Temperature Range	0 to 60 degrees C
Response Time	95% in less than 60 seconds
Sensor Check	Automatic self diagnostics
Outputs	2 Optically isolated 4-20 milliamp (one for each channel) Optically isolated RS-485 Modbus RS-232 serial 2 dry contact 10 amp relay setpoints (one for each channel) 1 alarm relay 1 clean relay
Memory Backup	Yes
Display	Backlit graphical LCD display with UV protection Contrast adjustment via keypad Continuously displays both channels
Sensor Cable Length	25 feet standard (optional lengths up to 2000 ft)
Ambient Temperature	minus 20 degrees C to 70 degrees C
Ambient Humidity	0 to 100 percent
Enclosure Rating	NEMA 4X
Wetted Materials	Epoxy, polyurethane, and PVC
Maximum Pressure	100 psi



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