

# **MODEL 2000**

## **DATA SHEET**

### **DUAL CHANNEL PROCESS ANALYZER**

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

***OPTICAL DO SENSOR NOT DAMAGED BY EXPOSURE TO SUNLIGHT***

The Insite Instrumentation Group Model 2000 dual channel analyzer is a unique system that combines advanced electronics with solid-state, smart sensors. The analyzer will accept any combination of DO, SS, pH, or ORP sensors and automatically configures for the correct operation. The system allows for flexible and economical process 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. The pH electrode is a

flat glass, double reference junction with automatic temperature compensation, built-in pre-amp and signal conditioner. All sensor/electrodes have built in self cleaning capabilities that allows for extended periods between maintenance. Simple, menu driven setup ensures quick and easy system installation.

Standard outputs are two isolated 4 to 20 milliamp signals, two setpoint relays, one alarm relay, one cleaning relay, and RS-485 ModBus RTU signal. This makes active process control based on real-time data a possibility in almost any system.



### **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.

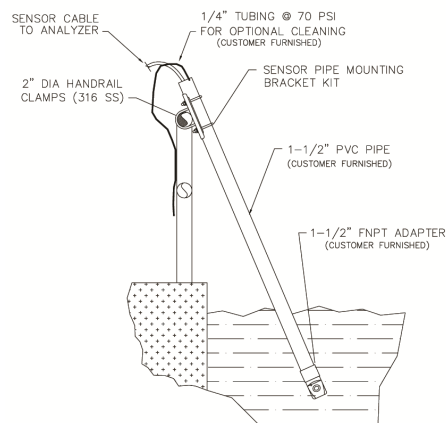
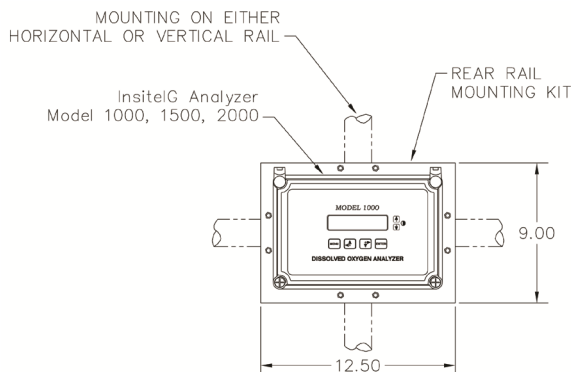


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# MODEL 2000 SPECIFICATIONS

<b>Measuring Range</b>	<b>DO</b> — 0 to 25 ppm <b>SS</b> — 0 to 30,000 mg/l <b>pH</b> — 2 to 12 pH <b>ORP</b> - +/- 2000mV
<b>Accuracy</b>	<b>DO</b> — 1% of reading or .05 ppm, whichever is greater <b>SS</b> — 3% of reading
<b>Sensitivity / Resolution</b>	<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
<b>Repeatability</b>	<b>DO</b> — .01 ppm <b>SS</b> — +/- 1%
<b>Sensor Drift</b>	<b>DO &amp; SS</b> — Less than 1% per year
<b>Temperature Range</b>	<b>DO &amp; SS</b> — 0 to 60 degrees C <b>pH &amp; ORP</b> — 10 to 100 degrees C
<b>Response Time</b>	95% in less than 60 seconds
<b>Sensor Check</b>	Automatic self diagnostics
<b>Outputs</b>	2 Optically isolated 4-20 milliamp (one for each channel) Optically isolated RS-485 Modbus 2 dry contact 10 amp relay setpoints (one for each channel) 1 alarm relay 1 clean relay
<b>Memory Backup</b>	Yes
<b>Display</b>	Backlit graphical LCD display with UV protection Contrast adjustment via keypad Continuously displays both channels
<b>Sensor Cable Length</b>	33 feet standard (optional lengths up to 2000 ft)
<b>Ambient Temperature</b>	minus 20 degrees C to 70 degrees C
<b>Ambient Humidity</b>	0 to 100 percent
<b>Enclosure Rating</b>	NEMA 4X



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