


Model 1500 Suspended Solids Analyzer Specification

General Description

<p>Manufacturer Contact Information and Service Information</p>	<p>Insite Instrumentation Group 80 Whisperwood Blvd. Suite 107 Slidell, LA 70458 Ph – 985-639-0006 Fax – 985-639-0014 e-mail – rdavis@insiteig.com</p>
<p>Analyzer/Sensor General Description</p> 	<p>The Model 1500 Suspended Solids Analyzer is a multi-range analyzer designed for the measurement of suspended solids in aqueous solutions. The microprocessor-based electronics of the Model 1500 analyzer provide a high degree of flexibility and ease of use. The instrument is designed to operate in a variety of applications. The sensor operates on the principle of single gap light absorption as a means of detecting the presence of suspended solids.</p> <p>The Model 15, 15T, and 15PI sensors were designed for medium ranges (0 to 30,000 mg/l) as commonly found in aeration basins and RAS/WAS lines of wastewater treatment plants. The Model 15L sensor was designed for low ranges (0 to 500) as commonly found in clarifier and plant effluents. All sensors utilize an infrared emitter to minimize color effects and compensates for emitter variations due to temperature by measuring source brightness. It incorporates self-cleaning optics via air or water jet.</p>
<h3><i>Analyzer/Transmitter Operational Data</i></h3>	
<p>Ambient condition requirements</p>	<p>Temperature – minus 40 degrees C to 55 degrees C Humidity – 0 to 100 percent Altitude – 0 to 10,000 feet</p>
<p>Display</p>	<p>The display is a two-line, backlit LCD with extended temperature range and resistant to UV.</p>
<p>Sensor Check</p>	<p>Automatic self diagnostics</p>
<p>Sensor to Analyzer Distance</p>	<p>2000 feet 610 meters</p>
<p>Power Requirements</p>	<p>115 VAC 60 Hz 230 VAC 50 Hz</p>
<p>Accuracy</p>	<p>3% of reading</p>
<p>Sensitivity or Resolution</p>	<p>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</p>

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Repeatability	+/- 0.5%
Consequence of Loss of Sample or Power	User selectable
Measuring ranges	0 to 30,000 mg/l
Temperature compensation	0 to 65 degrees C
Calibration Method	In situ using gravimetric or portable as reference.
Memory backup	Yes
<i>Analyzer/Transmitter Outputs</i>	
Analog	0 to 20 or 4 to 20 milliamp (user selectable) for suspended solids
Digital communication	Modbus RTU RS-232
Relay	There are three 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.
<i>Analyzer/Transmitter Mechanical Data</i>	
Enclosure Rating (<i>NEMA</i>)	NEMA 4X
Mounting Configurations	Horizontal handrail Vertical handrail Wall mount
Net Weight	Shipping weight is approximately 10 lbs.
<i>SS Sensor Data</i>	
Sensor Drift	Less than 1% per year
Wetted Materials	Epoxy, polyurethane, or 316 stainless steel
Temperature Range	0 to 65 degrees C
Maximum Pressure	100 psi
Measuring Range	0 to 30,000 mg/l

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Response Time	90% in less than 60 seconds
Principle of Operation (<i>measuring principle of sensor</i>)	The sensor operates on the principle of single gap light absorption as a means of detecting the presence of suspended solids. The sensor utilizes an infrared emitter to minimize color effects and compensates for emitter variations due to temperature by measuring source brightness. It incorporates self-cleaning optics via air or water jet.
Sensor Cable	4 conductor, 22 AWG, polyurethane jacket
Cleaning System	Air or water wash option available. Strongly recommended that one be utilized.
Sensor/Analyzer Data	
Documentation Provided	Operator Manual, Packing list, Mod bus RTU appendix
Installation and Start-Up Requirements	<p style="text-align: center;">General Installation</p> <ol style="list-style-type: none"> 1. A rear rail mounting kit is available for the standard enclosure (see Drawing IIG01N010). This mounting kit is design for a standard 2" handrail but can be adapted to square or angle handrails as well. 2. Mount the sensor in the desired location. InsiteIG can supply a sensor handrail mounting kit that easily mounts to most handrails and slide locks the sensor into place with out the use of tools. (see drawings IIG03N004 & IIG03N005). Again, this sensor mounting kit is design for a standard 2" handrail but can be adapted to square or angle handrails as well. 3. Open the enclosure of the Suspended Solids Analyzer. Pass all connection cables through ½" conduit or glands in the bottom of the enclosure (conduit fittings and glands not supplied). The sensor input connections are made to the terminal block labeled TB5 (see drawing IIG01R011). The four wires are color coded and there is a cable shield. Connect the RED wire to the terminal labeled "RED". Connect the GREEN wire to the terminal labeled "GRN". Connect the WHITE wire to the terminal labeled "WHT". Connect the BLACK wire to the terminal labeled "BLK". Connect the cable SHIELD to the terminal labeled "SHLD". Power connections are made to the terminal block labeled TB3. The analog output is available on the terminal block labeled TB1 and the relay outputs are available

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	<p>on the terminal block labeled TB6.</p> <ol style="list-style-type: none"> 4. Check switch S4 on the circuit board to be sure that it is set for the type of power being used (115 volts or 230 volts). Turn power "on" by using switch S3. Close and secure the enclosure. 5. After being turned on, the unit will initialize and then jump into the "RUN" mode and begin displaying the Suspended Solids content. 6. Whenever the sensor is removed from the process, the sensor should be allowed to stabilize for approximately 1 minute after it is put back in the process.
Recommended Spare Parts	None
Maintenance Requirements	<p style="text-align: center;"><u>MAINTENANCE</u></p> <p>The analyzer does not require any periodic maintenance if the jet clean option is selected (strongly recommended). The sensor must be kept clean for accurate readings. Normally, the jet clean system will adequately perform this function. However, the sensor should be retrieved and cleaned manually on a periodic basis to remove the heaviest fouling that may impair the performance of the sensor. The frequency of this cleaning will vary depending on the application.</p>
Sensor Storage Requirements When Out of Service	None
Level of Skill (<i>required to operate, maintain and calibrate instrument</i>)	Minimal
Special Tools or Other Devices Required for Maintenance and Calibration	None
Warranty	2 year
Manufacturer Service Centers Contact Information	80 Whisperwood Blvd., Suite107, Slidell, LA 70458 Phone – 985-639-0006
Safety Considerations	None
Human Exposure to Injury (<i>while operating, maintaining</i>)	None
Annual Cost of Replacement/Calibration Parts	\$0.00

