

Thermo Fisher Scientific provides reliable real time oxygen scavenger monitoring – to ensure optimum efficiency throughout your plant's water and steam loop. Accurate results with rapid response – our monitor is your best defense for controlling corrosion with performance you can trust!

## Thermo Scientific Orion 2118XP

### Oxygen Scavenger Monitor



#### Markets

- Power
- Pulp and Paper
- Semiconductor

#### Applications:

- Boiler Feedwater
- Hydrazine
- ELIMIN-OX®
- DEHA and other Carbohydrazides

#### Superior performance and ease of operation

As the demand for electricity expands, the quality and consistency of each plant's operation is essential for efficient power generation. To maintain high purity water standards for peak production, accurate and reliable monitoring is critical.

The NEW Thermo Scientific Orion 2118XP oxygen scavenger monitor offers unmatched results for the control and optimization of oxygen scavenger systems. Control spending and protect your system using the Orion 2118XP - the perfect balance of performance and ease of use.

The Orion 2118XP is ideally suited to monitor oxygen control in feedwater, boiler water, deaerator inlet/outlet, condensate discharge and economizer inlet. Ensure a sufficient amount of oxygen scavenger without upsetting system pH or additional expense.

The Orion 2118XP provides stable, drift-free measurements with minimal maintenance and less frequent calibrations.

#### Advantages:

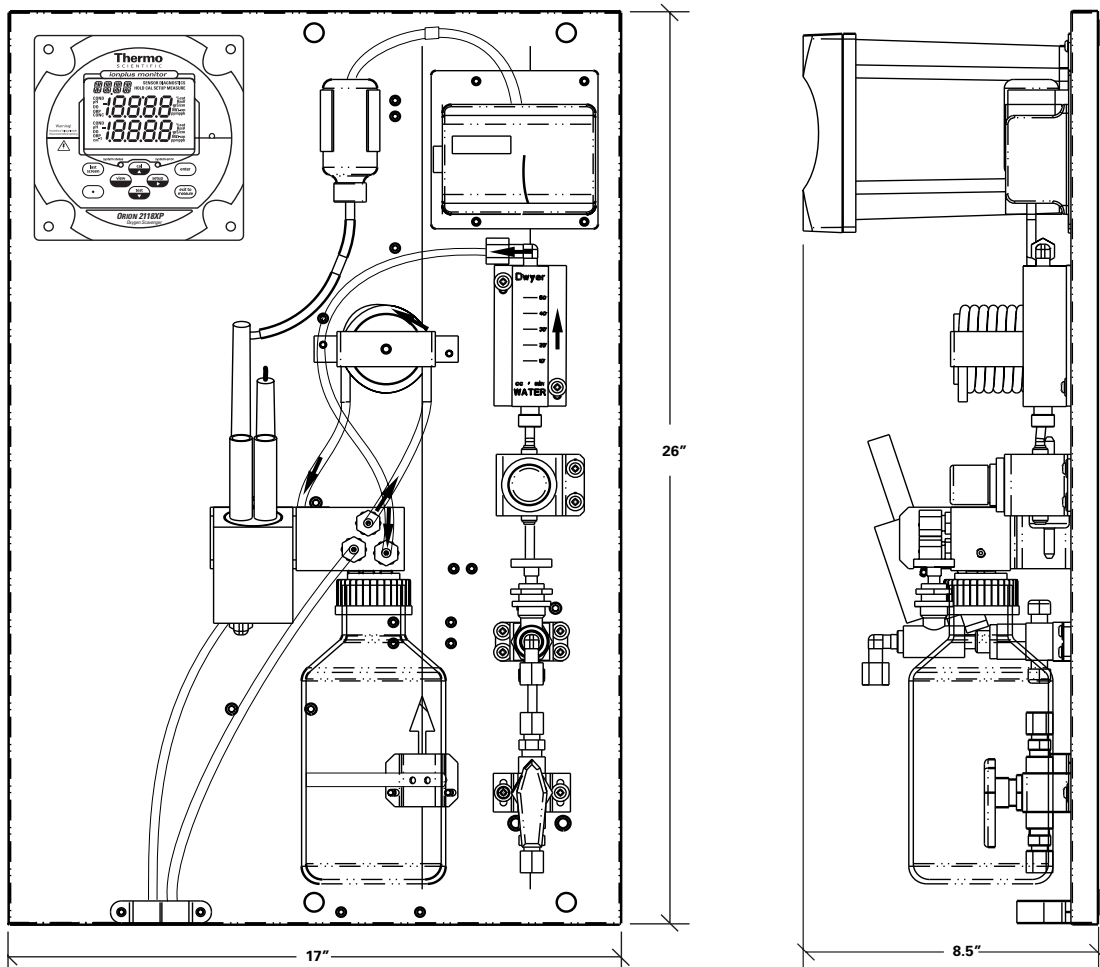
- Designed for versatility, our unique chemistry measures most oxygen scavengers with only a change in the standard
- Accurate and precise oxygen scavenger control maintains proper feed levels with confidence
- Repeatable and verifiable correlation of hydrazine readings to ELIMIN-OX® concentration using a proprietary iodide reaction for the highest level of performance available
- Easy to operate and calibrate with step-by-step calibration prompts that ensure a successful calibration the first time and every time
- User selectable calibration modes offer the most precise measurements, using online two point calibration or use the off-line calibration to match your lab results and maximize uptime

### Benefits

- Oxygen scavenger detection of hydrazine: 0 ppb to 200 ppb, ELIMIN-OX®: 0 ppb to 1000 ppb with the highest accuracy and precision available
- Continuous online measurement ensures real time information for optimum control of the oxygen scavenger feed pump without excessive operating costs
- Extremely easy to use while maximizing uptime - simple step-by-step scrolling instruction for setup, calibration, operation and diagnostics menus
- Measurements at a glance from any distance for even the lowest light conditions using the large operator friendly visible backlit display
- Fastest most stable measurements, limiting unnecessary calibration cycles due to drift with superior Orion iodide electrode technology
- Minimize operator time and maintenance without use of complicated moving parts or pumps that often require frequent attention and expensive spare part expenditures
- Extend reagent consumption up to 2 months using our uniquely simple reagent addition design to condition the sample pH and suppress interfering ions for optimal measurement performance
- Advanced user interface with detailed calibration, measurement and diagnostic logs for early diagnostic and action level notification, configurable for your facilities desired level of performance- all password protected if preferred
- Simple and fast user selectable calibration modes for precise 2 point calibration for ultimate accuracy or off-line calibration for lab correlation to have your system back online with security and confidence
- Easy installation has your plant up and running in minutes - the Orion 2118XP is retrofittable to the Orion 1818A0 panel mounting footprint

### Dimensions

Thermo Scientific Orion 2118XP installation dimensions shown without optional protective enclosure.





### Thermo Scientific Orion 2118XP Oxygen Scavenger Monitor

<b>Specific Ion Measurements</b>	<b>Range:</b> Hydrazine: 0 ppb - 200 ppb ELIMIN-OX®: 0 ppb - 1000 ppb
	<b>Resolution:</b> 2, 3 or 4 digits
	<b>Accuracy (with DYN cal):</b> Oxygen Scavenger: ± 5% or 2 ppb ELIMIN-OX®: ±5 % or 30 ppb
	<b>Reagent:</b> Iodide Reagent
<b>Response Time</b>	Reach 90% of reading within 1 minute of injecting a standard solution
<b>Units Displayed</b>	ppb, ppm (auto ranging), mV, temperature
<b>mV Measurement</b>	<b>Range:</b> ± 1999.9 mV
	<b>Resolution:</b> 0.1 mV
	<b>Relative accuracy:</b> ± (0.5 mV + 0.1%)
<b>Temperature Measurement</b>	<b>Range:</b> - 10 to 120 °C
	<b>Resolution:</b> 0.1 °C
	<b>Relative accuracy:</b> ± 0.5 °C
	<b>Continuous temperature readings:</b> YES
	<b>ATC probe connection detection:</b> YES
<b>Specific Ion Calibrations</b>	<b>Dynamic Dilution calibration:</b> YES
	<b>Dynamic Dilution calibration points:</b> 2 points
	<b>Offline calibration:</b> YES
	<b>Offline calibration points:</b> 1 point
	<b>Pre-programmed standard values:</b> YES
	<b>Custom programmed standard values:</b> YES
<b>Sample Conditions</b>	<b>Temperature:</b> 5 to 45 °C
	<b>Total alkalinity:</b> less than 50 ppm CaCO <sub>3</sub>
	<b>Inlet pressure:</b> 8 to 100 psig
	<b>Flow rate:</b> 40 mL/min nominal set by pressure regulator
	<b>Sample inlet:</b> 1/4" NPTF tube fitting
	<b>Sample drain:</b> 3/4" NPT male
	<b>Grab sampler supported:</b> YES
<b>Display</b>	Custom backlit LCD with temperature, concentration, mV, error codes, menu driven prompts
<b>Inputs</b>	<b>ATC:</b> 2 x NTC 30K
	<b>Specific ion input &amp; reference:</b> Potentiometric

<b>Outputs</b>	<b>Analog output:</b> Galvanically isolated
	<b>Number of analog outputs:</b> 2, one dedicated to oxygen scavenger, one to temperature; shared ground
	<b>Output selections:</b> 0 - 20 mA or 4 - 20 mA
	<b>Programmable range:</b> YES
	<b>Log &amp; linear output options:</b> YES, user selectable
	<b>Alarm outputs:</b> 3
	<b>Number of relay outputs:</b> 3
	<b>Maximum relay load:</b> 250 VAC, 5 A, 30 VDC
	<b>Minimum value alarm:</b> YES
	<b>Maximum value alarm:</b> YES
	<b>Error alarm:</b> YES
<b>Physical Size</b>	<b>Electronics:</b> 144 x 144 x 186 mm
	<b>Entire system:</b> 65 x 45 x 27 cm (26" x 17" x 11") Fits on 1818A0 panel mounting footprint.
	<b>Power</b>
	<b>Input:</b> 85-132 or 170-264 VAC
<b>Software Features</b>	<b>Self-test &amp; diagnostics:</b> YES
	<b>Real time clock:</b> YES
	<b>Meter serial number:</b> YES
	<b>Password protection:</b> YES
	<b>Programmable alarms:</b> High, low, error, calibration/offline
	<b>Reset function:</b> YES
	<b>Startup reset:</b> YES
<b>Meter Features</b>	<b>Hardware calibration function:</b> YES
	<b>Non-volatile memory:</b> YES
	<b>Battery backup:</b> YES
	<b>Expansion bus:</b> Serial communication & power
	<b>Waterproof enclosure:</b> IP66 & NEMA 4X
	<b>Regulatory and Safety</b>
	CE, CSA, UL, FCC Class A limits
<b>Environmental Operating Conditions</b>	<b>Ambient operating temperature:</b> 5 to 45 °C
	<b>Relative humidity:</b> 5 to 95% non-condensing
	<b>Storage temperature:</b> - 20 to 60 °C
	<b>Storage humidity:</b> 5 % to 95 %, non-condensing
<b>Case Material</b>	Valox 364
<b>Shock and Vibration</b>	<b>Vibration, shipping/handling:</b> 0 - 60 Hz @ 1 G Load
	<b>Shock, drop test in packaging:</b> 36" on all sides and corners

**Thermo Scientific Orion 2118XP Oxygen Scavenger Monitor**

- **Global support**— with experience that comes from supporting our calcium hardness customers for over 35 years throughout the world, our water quality specialists and customer support teams offer a quick, thorough and professional response to any problem encountered.

- **Focus on user benefits**— we work closely with you to define your needs, and ensure you are using the monitor in a way that improves your bottom line.

For more information, contact your local water quality specialists, call 1-800-225-1480 or visit [www.thermo.com/water](http://www.thermo.com/water).

Cat. No.	Oxygen Scavenger Monitor Packages
<b>2118XPEN</b>	<b>Oxygen Scavenger Monitor with Protective Enclosure Package</b> — Includes oxygen scavenger monitor with protective enclosure, iodide sensing electrode (100022), reference electrode (100056), ATC probe (2100TP), CD user guide and options kit
<b>2118XP</b>	<b>Oxygen Scavenger Monitor Instrument Only Package</b> — Includes oxygen scavenger monitor, iodide sensing electrode (100022), reference electrode (100056), ATC probe (2100TP), CD user guide and options kit
Cat. No.	Reagent Kits and Accessories
<b>211850XP</b>	<b>Oxygen Scavenger Consumables Kit</b> — for one year operation, includes (6) iodide reagent (6 x 1 L bottles) with (6) 6 ft length diffusion tubing assemblies with O-rings (2 x 181811), reagent bottle adapter (2118RBA), (1) 100 ppm hydrazine standard solution, pint (151810), (1) iodide sensing electrode (100022), (1) reference electrode (100056), (5) x 2 oz bottles reference filling solution (181073), (1) O-ring kit (2118OK), (1) restriction tube assembly, (2100RT), (2) 60 micron inlet filters and (1) filter gasket (181127)
<b>211850XPF*</b>	<b>Reagent-less Oxygen Scavenger Consumables Kit</b> — for one year operation, includes (6) empty bottles for use with iodide reagent (6 x 1 L bottles) with (6) 6 ft length diffusion tubing assemblies with O-rings, reagent bottle adapter (2118RBA), (1) 100 ppm hydrazine standard solution, pint (151810), (1) iodide sensing electrode (100022), (1) reference electrode (100056), (5) x 2 oz bottles reference filling solution (181073), (1) O-ring kit (2118OK), (1) restriction tube assembly, (2100RT), (2) 60 micron inlet filters and (1) filter gasket (181127)
<b>181811</b>	<b>Iodide Reagent</b> — for 6 months operation, includes (3) x 1 L bottles of iodide reagent and (3) 6 ft length diffusion tube assembly with O-rings (15 small for use on reagent bottle adapter connection barbs and 3 large for reagent bottle cap)
<b>181860</b>	<b>Diffusion Tubing Kit</b> — (3) 6 ft diffusion tubing assembly with O-rings
Cat. No.	Iodide Electrodes and Accessories
<b>2118XPEK</b>	<b>Iodide Electrode Kit</b> — includes (1) iodide electrode (100022) and (1) reference electrode (100056)
<b>100022</b>	<b>Iodide Sensing Electrode</b> — with screw cap, for use with 2118XP
<b>100056</b>	<b>Iodide Reference Electrode</b> — with screw cap, for use with 2118XP, includes reference electrode filling solution (181073)
<b>181073</b>	<b>Reference Electrode Filling Solution</b> — (5) x 2 oz bottles for use with reference electrode (100056), 3 month supply when used with pressurized reference assembly
<b>2100TP</b>	<b>2100 Series Automatic Temperature Probe</b> — with ground (30 kΩ), for use with 2118XP
<b>2001XT</b>	<b>2100 Series Automatic Temperature Probe</b> — with 10 meter extension cable and ground (30 kΩ), for use with 2118XP

Cat. No.	Iodide Electrodes and Accessories (cont'd)
<b>21003M</b>	<b>Extension Cables</b> — (2) 3 meter cables, for 100022 and 100056 electrodes
<b>2118XPCAL</b>	<b>Calibration Kit with Carrying Case</b> — includes (1) dynamic calibrator (21DC00), (1) 100 ppm hydrazine standard solution, pint (151810), and syringe kit for use with dynamic calibrator (180096)
<b>151810</b>	<b>Hydrazine Standard Solution</b> — includes (1) 475 mL bottle of 100 ppm hydrazine standard solution
Cat. No.	Field Replaceable Units
<b>2100EN</b>	2100 series enclosure for use with 2118XP
<b>2118FP</b>	Fluidics panel assembly only
<b>2118XPEP</b>	2118XP electronics faceplate
<b>2100NV</b>	Inlet valve assembly
<b>2100BV</b>	Needle valve assembly
<b>2100RG</b>	Regulator assembly
<b>2100FM</b>	Flow meter assembly
<b>2100RT</b>	Restrictor tube assembly
<b>2118RBA</b>	Reagent bottle adapter assembly with diffusion tube assembly
<b>2100PA</b>	Air pump assembly
<b>2100AF</b>	Air filter
<b>2100TG</b>	Tygon tubing (4 ft)
<b>2100PS</b>	Power supply assembly
<b>2100FK115</b>	Fuse kit assembly 115 V
<b>2100FK230</b>	Fuse kit assembly 230 V
<b>2118PN</b>	Pressurizing needle assembly
<b>2118MC</b>	Mixing coil-tubing spool assembly
<b>2118MV</b>	Micro-valve assembly, for calibration standard injection port
<b>2118CV</b>	Calibration valve assembly
<b>2118CB</b>	Fluid connector block assembly, with thumb screw and injection port
<b>2118FC</b>	Flow cell assembly with electrode holder, mounting bracket and O-rings
<b>2118OK</b>	O-ring kit- includes O-rings for reagent bottle and cap, micro-valve, and electrode holder
<b>181170</b>	(2) Inlet sample filters and gaskets
<b>2118XPSK</b>	<b>Service Kit</b> — includes (1) electronic faceplate (2118XPEP), (1) air pump assembly (2100PA), (1) regulator assembly (2100RG), (2) electrode cable with gland assemblies for sensing and reference electrodes, (1) power supply assembly (2100PS), and (1) fuse kit assembly (2100FK115 and 2100FK230)