

Thermo Scientific Orion 2118XP Oxygen Scavenger Analyzer

Control and optimization of oxygen scavenger systems

We provide reliable real time oxygen scavenger analysis – to ensure optimum efficiency throughout your plant's water and steam loop. Accurate results with rapid response – our analyzer is your best defense for controlling corrosion with performance you can trust!



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 analysis is critical.

The new Thermo Scientific™ Orion™ 2118XP oxygen scavenger analyzer 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 analyze 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 and without additional expenses.

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 a simple 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 the offline calibration to match your lab results and maximize uptime



Markets:

- Power
- Pulp and Paper
- Semiconductor

Applications:

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

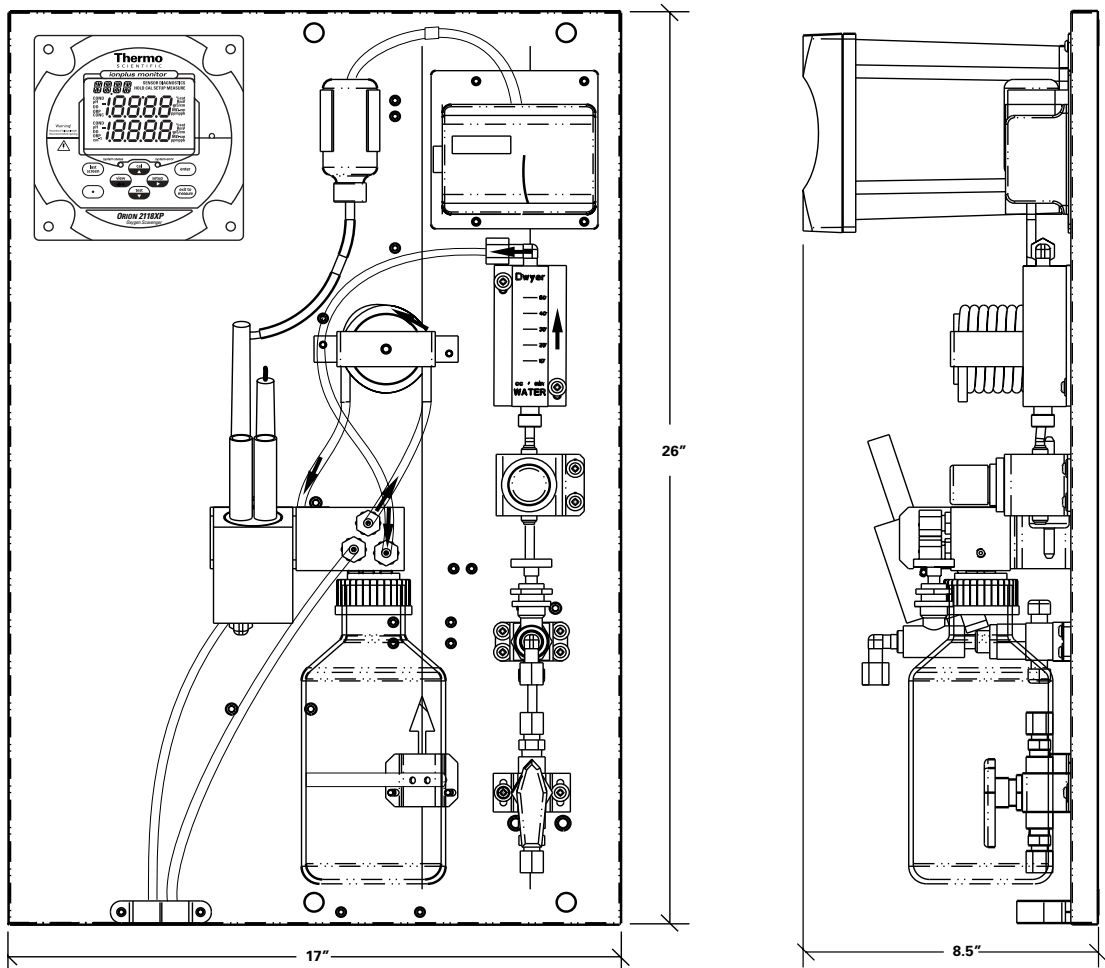
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Product Benefits

- Oxygen scavenger detection of 0 ppb to 200 ppb hydrazine or 0 ppb to 1000 ppb ELIMIN-OX 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 backlit display
- Fastest and 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 facility's 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 offline 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

Orion 2118XP installation dimensions shown without optional protective enclosure.



Product Specifications

Specific Ion Measurements	Range: Hydrazine: 0 ppb to 200 ppb ELIMIN-OX: 0 ppb to 1000 ppb	Outputs	Analog output: Galvanically isolated	
	Resolution: 2, 3 or 4 digits		Number of analog outputs: 2, one dedicated to oxygen scavenger, one to temperature; shared ground	
	Accuracy (with DYN cal): Oxygen Scavenger: ± 5% or 2 ppb ELIMIN-OX: ±5 % or 30 ppb		Output selections: 0 - 20 mA or 4 - 20 mA	
	Reagent: Iodide reagent		Programmable range: YES	
Response Time	Reach 90% of reading within 4 minutes of injecting a standard solution		Log & linear output options: YES, user selectable	
Units Displayed	ppb, ppm (auto ranging), mV, temperature		Alarm outputs: 3	
mV Measurement	Range: ± 1999.9 mV		Number of relay outputs: 3	
	Resolution: 0.1 mV		Maximum relay load: 250 V AC, 5 A, 30 V DC	
	Relative accuracy: ± (0.5 mV + 0.1%)		Minimum value alarm: YES	
Temperature Measurement	Range: - 10 to 120 °C		Maximum value alarm: YES	
	Resolution: 0.1 °C		Error alarm: YES	
	Relative accuracy: ± 0.5 °C		Calibration/offline alarm: YES	
	Continuous temperature readings: YES		Programmable min & max values: YES	
Specific Ion Calibrations	ATC probe connection detection: YES	Physical Size	Electronics: 144 x 144 x 186 mm	
	Dynamic Dilution calibration: YES		Entire system: 65 x 45 x 27 cm (26" x 17" x 11") Fits on 1818A0 panel mounting footprint.	
	Dynamic Dilution calibration points: 2 points	Power	Input: 85-132 or 170-264 V AC	
	Offline calibration: YES		Software Features	Self-test & diagnostics: YES
	Offline calibration points: 1 point			Real time clock: YES
	Pre-programmed standard values: YES		Meter serial number: YES	
Custom programmed standard values: YES	Reset function: YES	Password protection: YES		
Sample Conditions	Temperature: 5 to 45 °C	Meter Features	Programmable alarms: High, low, error, calibration/ offline	
	Total alkalinity: Less than 50 ppm CaCO ₃		Startup reset: YES	
	Inlet pressure: 8 to 100 psig		Hardware calibration function: YES	
	Flow rate: 40 mL/min nominal set by pressure regulator		Non-volatile memory: YES	
	Sample inlet: 1/4" NPTF tube fitting		Battery backup: YES	
	Sample drain: 3/4" NPT male		Expansion bus: Serial communication & power	
Grab sampler supported: YES	Electronics	Waterproof enclosure: IP66 & NEMA 4X		
Display	Custom backlit LCD with temperature, concentration, mV, error codes and menu driven prompts	Regulatory and Safety	CE, CSA, FCC Class A limits	
	Inputs	Environmental Operating Conditions	Ambient operating temperature: 5 to 45 °C	
ATC: 2 x NTC 30K	Relative humidity: 5 to 95% non-condensing			
Specific ion input & reference: Potentiometric	Storage temperature: - 20 to 60 °C			
	Storage humidity: 5 % to 95 %, non-condensing			
	Case Material	Valox® 364		
	Shock and Vibration	Vibration, shipping/handling: 0 - 60 Hz @ 1 G Load		
		Shock, drop test in packaging: 36" on all sides and corners		

Orion 2118XP Oxygen Scavenger Analyzer

Global support — with experience that comes from supporting our 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 analyzer 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.thermoscientific.com/processwater.

Cat. No. Oxygen Scavenger Analyzer Packages

2118XPEN **Oxygen Scavenger Analyzer with Protective Enclosure Package**— includes oxygen scavenger analyzer with protective enclosure, iodide electrode (100022), reference electrode (100056), ATC probe (2100TP), CD user guide and options kit

2118XP **Oxygen Scavenger Analyzer Instrument Only Package**— includes oxygen scavenger analyzer with iodide electrode (100022), reference electrode (100056), ATC probe (2100TP), CD user guide and options kit

Cat. No. Reagent Kits and Accessories

211850XP **Oxygen Scavenger Consumables Kit**— for one year operation, includes (6) x 1 L bottles iodide reagent with (6) x 6 ft diffusion tubing assemblies with O-rings (181811), reagent bottle adapter (2118RBA), (1) x 1 pint bottle 100 ppm hydrazine standard solution (151810), (1) iodide 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) x 60 micron inlet filters and (1) filter gasket (181127)

211850XP* **Reagent-less Oxygen Scavenger Consumables Kit**— for one year operation, includes (6) x 1 L empty bottles for use with iodide reagent and (6) x 6 ft diffusion tubing assemblies with O-rings, reagent bottle adapter (2118RBA), (1) x 1 pint bottle 100 ppm hydrazine standard solution (151810), (1) iodide 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) x 60 micron inlet filters and (1) filter gasket (181127)

181811 **Iodide Reagent**— for 6 months operation, includes (3) x 1 L bottles iodide reagent and (3) x 6 ft diffusion tubing assemblies with O-rings (15 small for use on reagent bottle adapter connection barbs and 3 large for reagent bottle cap)

181860 **Diffusion Tubing Kit**— (3) x 6 ft diffusion tubing assemblies with O-rings

Cat. No. Iodide Electrodes and Accessories

2118XPEK **Iodide Electrode Kit**— includes (1) iodide electrode (100022), (1) reference electrode (100056) and 1 x 2 oz bottle reference electrode filling solution (181073)

100022 **Iodide Sensing Electrode**— for use with 2118XP

100056 **Iodide Reference Electrode**— for use with 2118XP, includes 1 x 2 oz bottle reference electrode filling solution

181073 **Reference Electrode Filling Solution**— (5) x 2 oz bottles, for use with reference electrode (100056), 3 month supply when used with pressurized reference assembly

2100EC **Electrode Cables**— (2) x 1 meter cables, for 100022 and 100056 electrodes

21003M **Extension Cables**— (2) x 3 meter cables, for 100022 and 100056 electrodes

2100TP **2100 Series Automatic Temperature Probe**— with ground (30 kΩ)

* For International Use Only

Cat. No.	Iodide Electrodes and Accessories (cont)
2001XT	2100 Series Automatic Temperature Probe — with 10 meter extension cable and ground (30 kΩ)
2118XPICAL	Calibration Kit with Carrying Case — includes (1) dynamic calibrator (21DC00), (1) x 1 pint bottle 100 ppm hydrazine standard solution (151810) and syringe kit for use with dynamic calibrator (180096)
151810	Hydrazine Standard Solution — includes (1) x 1 pint bottle 100 ppm hydrazine standard solution
Cat. No.	Field Replaceable Units
2100EN	2100 series enclosure
2118FP	Fluidics panel assembly only
2118XPEP	2118XP electronics faceplate
2100NV	Inlet valve assembly
2100BV	Needle valve assembly
2100RG	Regulator assembly
2100FM	Flow meter assembly
2100RT	Restrictor tube assembly
2118RBA	Reagent bottle adapter assembly with diffusion tube assembly
2100PA	Air pump assembly
2100AF	Air filter
2100TG	Tygon [®] tubing (4 ft)
2100PS	Power supply assembly
2100FK115	Fuse kit assembly 115 V
2100FK230	Fuse kit assembly 230 V
2118PN	Pressurizing needle assembly
2118MC	Mixing coil-tubing spool assembly
2118MV	Micro-valve assembly, for calibration standard injection port
2118CB	Fluid connector block assembly, with thumb screw and injection port
2118FC	Flow cell assembly with electrode holder, mounting bracket and O-rings
2118OK	O-ring kit, includes O-rings for reagent bottle and cap, micro-valve and electrode holder
181170	(2) inlet sample filters and gaskets
2118XPSPK	Service Kit — 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)



Thermo Fisher Scientific
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Chelmsford, MA USA
Quality Management System
Registered to ISO 9001

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