

Chloride detection with rapid response

Superior performance and ease of operation

The risks associated with adverse steam chemistry cost the power industry millions and lead to the accumulation of corrosive deposits that jeopardize the efficiency and safety of steam turbine components.

The Thermo Scientific™ Orion™ 2117XP Chloride Analyzer detects chloride in real time, providing accurate and reliable results. Early detection of chloride ingress from feedwater helps manufacturing plants maintain the optimal balance of water purification with peace of mind.

With premium electrode technology for stability combined with a low maintenance fluidic design, the Orion 2117XP Analyzer provides high performance results with confidence. The all-in-one system continuously displays levels of chloride to prevent against corrosion effects known to cause mechanical damage to steam cycle components and subsequent efficiency losses.

Advantages

- Holds calibration up to 60 days between reagent changes
- Fast and highly accurate calibration has the system back online in minutes
- Long life solid state sensor technology offers stability and high performance
- No moving parts for simple operation and minimal maintenance required
- Repeatable and verifiable measurements at a glance using the large, user friendly display



Markets

- Agricultural water
- Semiconductor
- Power
- Pulp and paper

Applications

- RO feedwater analysis
- Seawater cooled condenser leak detection
- Boiler water analysis
- Agricultural water analysis



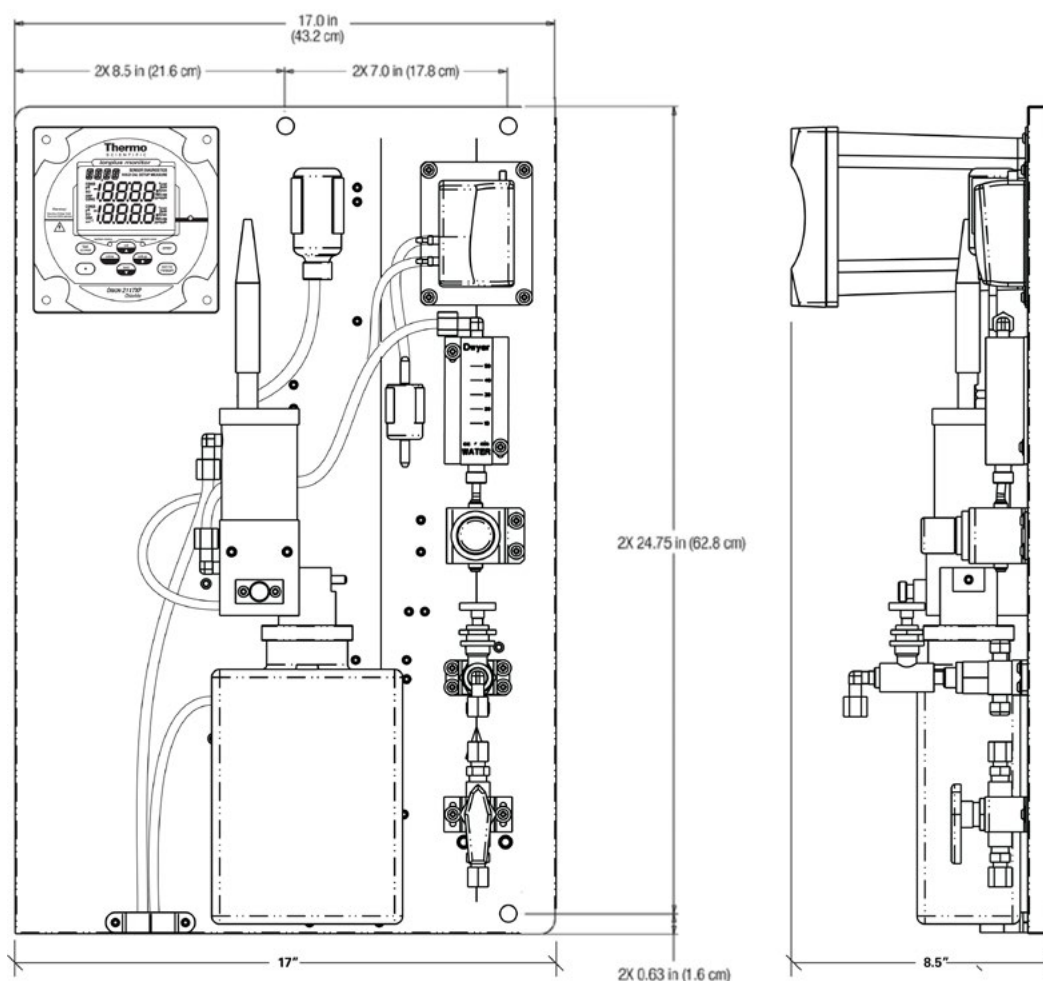
Orion 2117XP
Chloride Analyzer

Features

- Detection limit of 0.1 ppm offers continuous chloride analysis in a wide variety of samples
- Sensitive, verifiable measurements that provide early detection of chloride in RO and boiler systems
- Simple step-by-step scrolling instruction for setup, calibration, operation and diagnostics menus is easy to use while maximizing uptime
- Large operator friendly backlit display to view measurements with even the lowest light conditions
- Superior Orion chloride electrode technology fast and stable measurements, limiting unnecessary calibration cycles due to drift
- Minimize operator time and maintenance without use of complicated moving parts that often require frequent attention and expensive spare part expenditures
- Advanced user interface with detailed calibration, measurement and diagnostic logs for early action level notification, configurable to facility's desired level of performance, and password protected, if preferred
- Simple and fast calibration cycles using double known addition to securely and quickly get the system back online
- Retrofittable to the Thermo Scientific™ Orion™ 1817HL Analyzer panel mounting footprint
- Expandable platform with grab sampler, automation and automatic validation modules
- Reagent addition adjusts pH for proper sample conditioning to ensure accurate and reliable measurements consistently
- Modus® communication card option available

Dimensions

Orion 2117XP Analyzer installation dimensions shown without optional protective enclosure.



Global support

With experience that comes from supporting our customers for over 50 years throughout the world, our water quality specialists and customer support teams offer a quick, thorough and professional response to any problem encountered.

Product Specifications

Specification	Description
Specific ion measurements	Range: 0.1 ppm to 100 ppm
	Resolution: 2, 3 or 4 digits
	Accuracy (with DKA cal): $\pm 10\%$
	Reagent: Formic acid
Response time	95% of final reading within 2 minutes of injecting a standard solution
Units displayed	ppb, ppm (auto ranging)
mV measurement	Range: ± 1999.9 mV
	Resolution: 0.1 mV
	Relative accuracy: $\pm (0.5 \text{ mV} + 0.1\%)$
Temperature measurement	Range: -10 to 120°C
	Resolution: 0.1°C
	Relative accuracy: $\pm 0.5^{\circ}\text{C}$
	Continuous temperature readings: Yes
	ATC probe connection detection: Yes
Specific ion calibrations	DKA calibration: Yes
	DKA calibration points: 3 points
	Offline calibration: Yes
	Offline calibration points: 1 point
	Pre-programmed standard values: Yes
	Custom programmed standard values: Yes
Sample conditions	Temperature: 5 to 35°C
	Total alkalinity: Less than 50 ppm CaCO_3 - *Sulfite must not be present in the sample
	Inlet pressure: 8 to 100 psig
	Flow rate: 40 mL/min nominal set by pressure regulator
	Sample inlet: $1/4''$ NPTF tube fitting
	Sample drain: $3/4''$ NPT male
	Grab sampler supported: Yes
Display	Custom backlit LCD with temperature, concentration, mV, error codes and menu driven prompts
Inputs	ATC: $2 \times \text{NTC } 30\text{K}$ (second ATC with second parameter card)
	Specific ion input & reference: Potentiometric

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.

Outputs	Analog output: Galvanically isolated
	Number of analog outputs: 2, both outputs dedicated to chloride; individual user-selectable ranges
	Output selections: $0 - 20 \text{ mA}$ or $4 - 20 \text{ mA}$
	Programmable range: Yes
	Log & linear output options: Yes, user selectable
	Alarm outputs: 3
	Number of relay outputs: 3
	Maximum relay load: 250 V AC , 5 A , 30 V DC
	Minimum value alarm: Yes
	Maximum value alarm: Yes
Physical size	Error alarm: Yes
	Calibration/offline alarm: Yes
	Programmable min & max values: Yes
Power	Electronics: $144 \times 144 \times 187 \text{ mm}$
	Entire system: $65 \times 45 \times 27 \text{ cm}$ ($26'' \times 17'' \times 11''$) Fits on Orion 1811EL panel mounting footprint
Software Features	100-120V 200mA / 200-240V 100mA; 50-60 Hz AC
	Self-test and diagnostics: Yes
	Real time clock: Yes
	Meter serial number: Yes
	Password protection: Yes
Meter features	Programmable alarms: High, low, error, calibration/offline
	Reset function: Yes
	Startup reset: Yes
	Hardware calibration function: Yes
	Non-volatile memory: Yes
Electronics	Battery backup: Yes
	Expansion bus: Serial communication & power
	Waterproof enclosure: IP66 & NEMA 4X
Regulatory and safety	CE, CSA, FCC Class A limits
Environmental operating conditions	Ambient operating temperature: 5 to 45°C
	Relative humidity: 5 to 95% non-condensing
	Storage temperature: -20 to 60°C
	Storage humidity: 5% to 95% , non-condensing
Case material	Valox 364
Shock and vibration	Vibration, shipping/handling: $0 - 60 \text{ Hz}$ @ 1 G Load
	Shock, drop test in packaging: $36''$ on all sides and corners

Ordering Information

Description	Cat. No.
Chloride analyzer packages	
Chloride Analyzer with Protective Enclosure Package – includes chloride analyzer with protective enclosure, chloride electrode (100025), reference electrode (100057), ATC probe (2100TP), standard solution kit (211740), CD user guide and options kit.	2117XPEN
Chloride Analyzer Instrument Only Package – includes chloride analyzer with chloride electrode (100025), reference electrode (100057), ATC probe (2100TP), standard solution kit (211740), CD user guide and options kit.	2117XP
Reagent kits and accessories	
Chloride Consumables Kit – for one year operation, includes (6) x 1 L bottles formic acid reagent and (6) x 2 ft diffusion tubing with O-rings (182011), chloride standard solution kit (211740), chloride electrode (100025), reference electrode (100057), (1) x 4 oz bottle reference electrode filling solution (100057F4), O-ring kit (2100OK), check valve (2100VC), pipette tips (204846-001), restriction tube	211750XP
Calibration Kit –includes carrying case, 0.5 mL pipet (204847-001), box of pipet tips (204846-001), wash bottle, (2) x 2 oz bottles chloride standard 2 (2946 ppm) and (1) inlet filter	2117HLCAL
Reagent-less Chloride Consumables Kit –for one year operation, includes (6) x 1 L empty bottles for use with formic acid reagent (182011), (6) x 2 ft long diffusion tubing with O-rings (181060), chloride standard solution kit (211740), chloride electrode (100025), reference electrode (100057), (1) x 4 oz bottle reference electrode filling solution (100057F4), O-ring kit (2100OK), check valve (2100VC), pipette tips (204846-001), restriction tube assembly (2100RT) and inlet filter with gaskets (181170)	211750XPF*
Formic Acid Reagent – 60 day supply, includes (1) x 1 L bottle formic acid reagent and (1) x 2 ft diffusion tubing with O-rings (181060)	182011
Reagent-less Formic Acid Reagent Bottle – includes (6) x 1 L empty bottles for use with formic acid reagent (182011) and (6) x 2 ft diffusion tubing with O-rings (181060)	182011F6*
(1) x 2 ft diffusion tubing and O-rings	181060
(3) x 5'8" thin-walled diffusion tubing and O-rings, for high alkalinity samples, 6 month supply	181160
Chloride electrodes and accessories	
Chloride Electrode Kit – includes chloride electrode (100025), reference electrode (100057) and (1) x	2117XPEK
Chloride Sensing Electrode – for use with 2117XP	100025
Chloride Reference Electrode – for use with 2117XP, includes (1) x 4 oz bottle reference electrode filling solution	100057
Reference Electrode Filling Solution – (4) x 4 oz bottles, for use with 100057 reference electrode	100057F4
2100 Series Automatic Temperature Probe – with ground (30 kΩ)	2100TP
2100 Series Automatic Temperature Probe – with 10 meter extension cable and ground (30 kΩ)	2100XT

*For International Use Only

Chloride electrodes and accessories - cont'd	
Electrode Cables – (2) x 1 meter cables for 210048 and 210058 electrodes	2100EC
Extension Cables – (2) x 3 meter cables for 210048 and 210058 electrodes	21003M
Calibration Kit – includes carrying case, 0.5 mL pipette (204847-001), box of pipette tips (204846-001), wash bottle, (1) x 2 oz bottle chloride standard 1 (296 ppm), (1) x 2 oz bottle chloride standard 2 (2946 ppm) and (1) inlet filter	2117XPCAL
Chloride Standard Solution Kit – includes (2) x 2 oz bottles of chloride standard 1 (296 ppm) and (2) x 2 oz bottles of chloride standard 2 (2946 ppm)	211740
Field replaceable units Refer to user guide for complete list	
2100 series enclosure	2100EN
Fluidics panel assembly only	2100FP
Bypass/needle valve assembly	2100BV
Regulator assembly	2100RG
Drain and clamp assembly	2100DA
Flow meter assembly	2100FM
Restrictor tube assembly	2100RT
Flow cell assembly	2100FC
Air pump assembly	2100PA
Air filter assembly	2100AF
Diffusion bottle adaptor	2100FABA
(2) x 1 meter electrode cables	2100EC
Power supply assembly	2100PS
2117XP electronics faceplate	2117XPEP
Service Kit –includes (1) electronics faceplate (2117XPEP), (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)	2117XPSK

Find out more at thermofisher.com/processwater

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