

Real-time analysis of chloride levels are essential across many industrial applications. Used to maintain the proper chloride balance in many food and beverage products as well as in the prevention of stress corrosion failures—we have the system to optimize your process.

Thermo Scientific Orion 2117HL

High Level Chloride Analyzer



Markets

- Food & Beverage
- Semiconductor
- Power
- Pulp and paper
- Agriculture

Applications

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

Superior Performance and Ease of Operation

Confronted by the many challenges of maintaining your plant's chemistry control, we have the solution for your high chloride measurement needs. The new Thermo Scientific Orion 2117HL high level chloride analyzer offers industry leading performance to measure elevated levels of chloride in real time. We have the reliability needed to maintain the optimal balance of water purification.

Based upon our premium electrode technology for stability combined with a virtually maintenance free fluidic design and reagent-less system—the 2117HL analyzer provides high performance results, simply and accurately.

Advantages

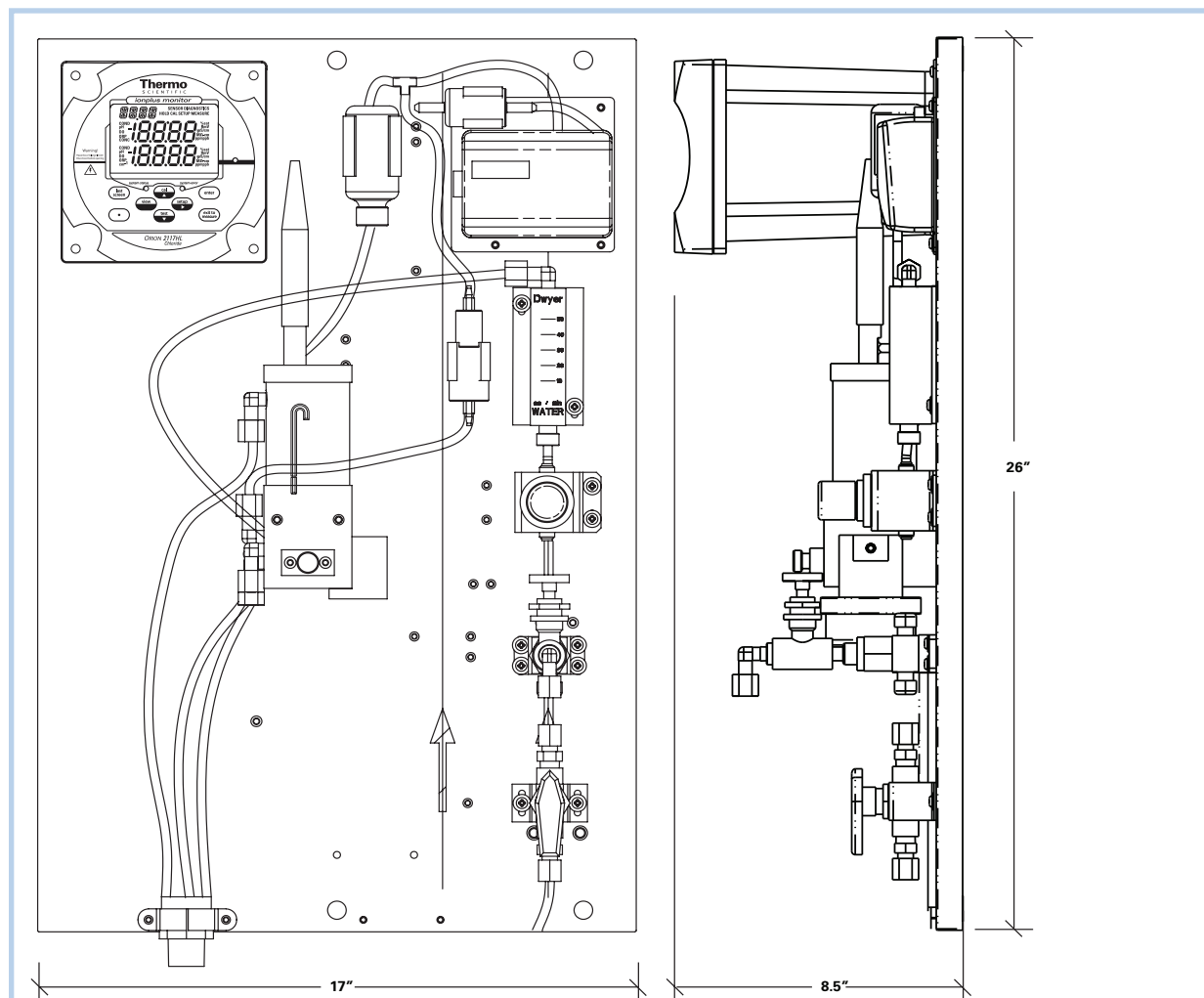
- No reagent required for analysis
- New enhanced electrode technology offers long lasting reliability and accuracy
- Fast and highly accurate calibration has you back online in minutes
- Simple operation and minimal maintenance required—no moving parts
- Repeatable and verifiable measurements at a glance using the large, user friendly display

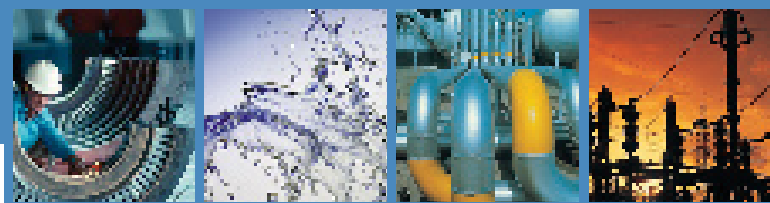
Benefits

- Detection range of 75 ppm to 1000 ppm – the 2117HL analyzer offers continuous chloride monitoring in a wide variety of samples
- New Thermo Scientific Orion high level chloride electrode has been optimized from long lasting response and performance
- 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
- Operating without chemical reagent allows placement where cleanliness is critical - and it is better for the environment
- Fastest and most stable measurements, limiting unnecessary calibration cycles due to drift with superior Thermo Scientific Orion chloride electrode technology
- Minimize operator time and maintenance without use of reagents, complicated moving parts or pumps that often require frequent attention and expensive spare part expenditures
- Advanced user interface with detailed calibration, measurement and diagnostic logs for early diagnostic and action level notification, configurable to your facility's desired level of performance, and all password protected if preferred
- Simple and fast calibration cycles using double known addition—DKA to quickly have your system back online with security and confidence
- Easy installation has your plant up and running in minutes—the 2117HL analyzer is retrofitable to the Thermo Scientific Orion 1817HL panel mounting footprint
- Expandable platform with grab sampler, automation and automatic validation modules

Dimensions

Thermo Scientific Orion 2117HL installation dimensions shown without optional protective enclosure.





Thermo Scientific Orion 2117HL High Level Chloride Analyzer

Specific Ion Measurements	Range: 75 ppm to 1000 ppm
	Resolution: 2, 3 or 4 digits
	Accuracy (with DKA cal): ± 10%
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: ± (0.5 mV + 0.1%)
Temperature Measurement	Range: - 10 to 120 °C
	Resolution: 0.1 °C
	Relative accuracy: ± 0.5 °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 <i>*Sulfite must not be present in the sample</i>
	Inlet pressure: 8 to 100 psig
	Flow rate: 40 mL/minute 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 x NTC 30K
	Specific ion input & reference: Potentiometric

Outputs	Analog output: Galvanically isolated
	Number of analog outputs: Two, one dedicated to chloride, one to temperature; shared ground
	Output selections: 0 - 20 mA or 4 - 20 mA
	Programmable range: YES
	Log & linear output options: YES, user selectable
	Alarm outputs: 3
	Number of relay outputs: 3
	Maximum relay load: 250 VAC, 5 A, 30 VDC
	Minimum value alarm: YES
	Maximum value alarm: YES
	Error alarm: YES
	Calibration/offline alarm: YES
Programmable min & max values: YES	
Physical Size	Electronics: 144 x 144 x 187 mm
	Entire system: 65 x 45 x 27 cm (26" x 17" x 9") Fits on 1817HL panel mounting footprint.
Power	Input: 85-132 or 170-264 VAC
Software Features	Self-test & diagnostics: YES
	Real time clock: YES
	Meter serial number: YES
	Password protection: YES
	Programmable alarms: High, low, error, calibration/offline
	Reset function: YES
	Startup reset: YES
	Hardware calibration function: YES
Meter Features	Non-volatile memory: YES
	Battery backup: YES
	Expansion bus: Serial communication & power
	Waterproof enclosure: IP66 and NEMA 4X
Electronics	
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 Hz @ 1 G Load
	Shock, drop test in packaging: 36" on all sides and corners

Thermo Scientific Orion 2117HL Chloride Analyzer

- **Global support** – with experience that comes from supporting our chloride 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.
- **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.thermo.com/processwater.

Cat. No.	Chloride Analyzer Packages
2117HLEN	High Level Chloride Analyzer with Protective Enclosure Package – includes high level chloride analyzer with protective enclosure, chloride electrode (210017), reference electrode (100057), ATC probe (2100TP), chloride standard solutions kit (211740HL), CD user guide and options kit
2117HLENG	High Level Chloride Analyzer with Protective Enclosure Package – includes high level chloride analyzer with protective enclosure and integral grab sampler, chloride electrode (210017), reference electrode (100057), ATC probe (2100TP), chloride standard solutions kit (211740HL), CD user guide and options kit
2117HL	High Level Chloride Analyzer Only Package – includes high level chloride analyzer with chloride electrode (210017), reference electrode (100057), ATC probe (2100TP), chloride standard solutions kit (211740HL), CD user guide and options kit
2117HLG	High Level Chloride Analyzer Only Package – includes high level chloride analyzer and integral grab sampler with chloride electrode (210017), reference electrode (100057), ATC probe (2100TP), chloride standard solutions kit (211740HL), CD user guide and options kit
Cat. No.	Accessories and Electrodes
211750HL	High Level Chloride Consumables Kit – for one year operation, includes chloride standard solutions kit (211740HL), chloride electrode (210017), reference electrode (100057), (1) x 4 oz bottle reference electrode filling solution (100057F4), O-ring kit (21000K), check valve (2100VC), pipet tips (204846-001), restriction tube assembly (2100RT) and inlet filter with gaskets (181170)
2117HLCAL	Calibration Kit – includes carrying case, 0.5 mL pipet (204847-001), box of pipet tips (204846-001), wash bottle, (5) x 2 oz bottles of 29,600 ppm high level chloride standard and (1) inlet filter
211740HL	Chloride Standard Solutions Kit – includes (5) x 2 oz bottles of 29,600 ppm high level chloride standard
2117HLEK	Chloride Electrode Kit – includes chloride electrode (210017), reference electrode (100057) and (1) x 4 oz bottle reference electrode filling solution (100057F4)
210017	Chloride Sensing Electrode – for use with 2117HL
100057	Chloride Reference Electrode – for use with 2117HL, includes (1) x 4 oz bottle reference electrode filling solution
100057F4	Reference Electrode Filling Solution – (4) x 4 oz bottles, for use with 100057 reference electrode
2100TP	2100 Series Automatic Temperature Probe – with ground (30 kΩ)

Cat. No.	Accessories and Electrodes (cont)
2001XT	2100 Series Automatic Temperature Probe – with 10 meter extension cable and ground (30 kΩ)
2100EC	Electrode Cables – (2) x 1 meter cables, for 210017 and 100057 electrodes
21003M	Extension Cables – (2) x 3 meter cables, for 210017 and 100057 electrodes
Cat. No.	Field Replaceable Units
2100EN	2100 series protective enclosure
2100FP	Fluidics panel assembly only
2100BP	Steel back panel assembly
2100NV	Inlet valve assembly
2100BV	Bypass/needle valve assembly
2100RG	Regulator assembly
2100DA	Drain and clamp assembly
2100FM	Flow meter assembly
2100RT	Restrictor tube assembly
2100FC	Flow cell assembly
2117HLPA	(1) air pump assembly (2100PA) with (1) relief valve
2100PA	Air pump assembly
2100AF	Air filter assembly
2100DV	Diverter valve assembly
2100VC	Check valve
181170	(2) Inlet filters
2117HLM	Flow cell manifold for 2117HL analyzer
2117PN	Pressurized needle assembly for reference filling solution bottle
2100OK	O-ring kit
2100FK115	Fuse kit assembly 115 V
2100FK230	Fuse kit assembly 230 V
2100PS	Power supply assembly
2117HLEP	2117HL electronics faceplate
2117HLSK	Service Kit – includes (1) electronics faceplate (2117HLEP), (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)



S-2117HL-E 0110 RevB