

Thermo Scientific Orion 2117HL High Level Chloride Analyzer

Real-time chloride level analysis

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.



Markets:

- Agricultural water
- Semiconductor
- Power
- Pulp and paper

Applications:

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



Confronted by the many challenges of maintaining your plant's chemistry control, we have the solution for your high chloride measurement needs. The 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:

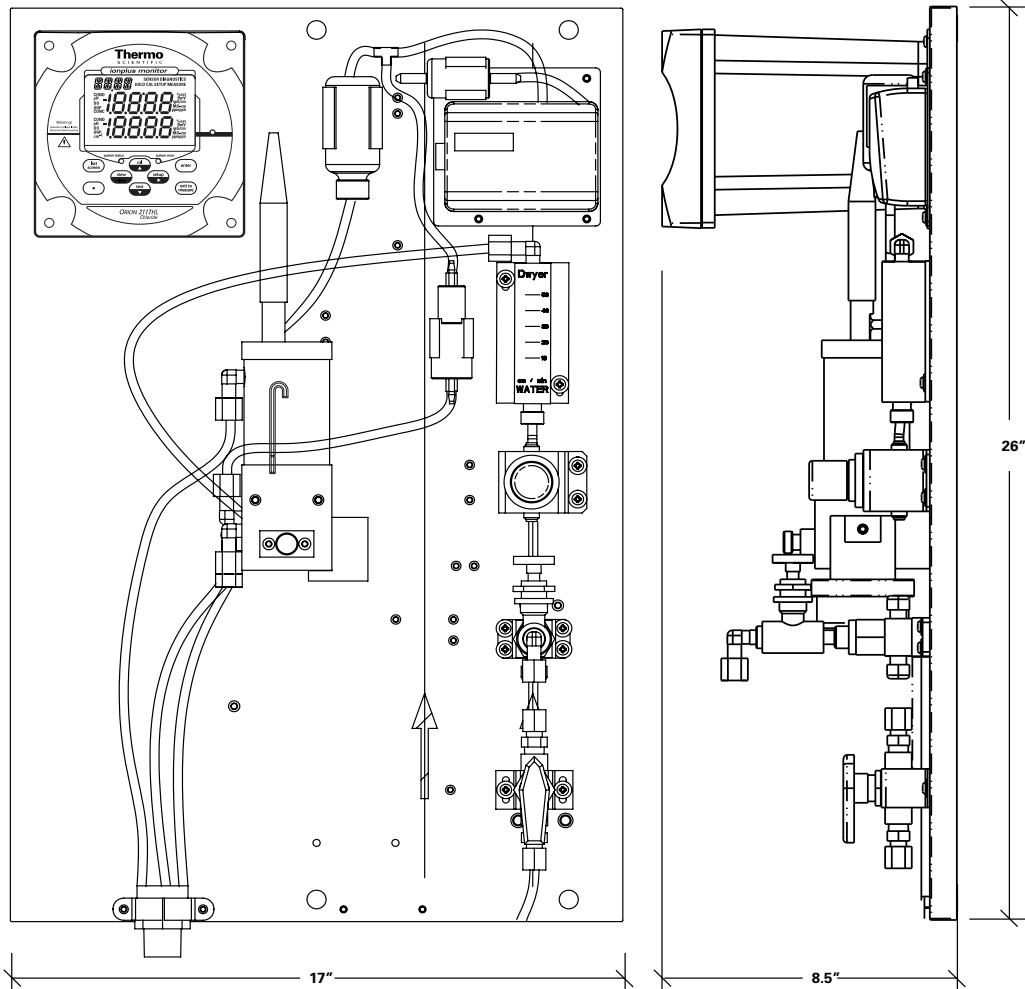
- No reagent required for analysis
- Fast and highly accurate calibration has you back online in minutes
- New enhanced electrode technology offers long lasting reliability and accuracy
- Simple operation and minimal maintenance required—no moving parts
- Repeatable and verifiable measurements at a glance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

Product 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 for 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
- Fastest and most stable measurements, limiting unnecessary calibration cycles due to drift with superior 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—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 Orion 1817HL panel mounting footprint
- Expandable platform with grab sampler, automation and automatic validation modules

Dimensions

Orion 2117HL installation dimensions shown without optional protective enclosure.



Product Specifications

Specific Ion Measurements	Range: 75 ppm to 1000 ppm	Outputs	Analog output: Galvanically isolated	
	Resolution: 2, 3 or 4 digits		Number of analog outputs: Two, one dedicated to chloride, one to temperature; shared ground	
	Accuracy (with DKA cal): $\pm 10\%$		Output selections: 0 - 20 mA or 4 - 20 mA	
Response Time	95% of final reading within 2 minutes of injecting a standard solution		Programmable range: YES	
Units Displayed	ppb, ppm (auto ranging)		Log & linear output options: YES, user selectable	
mV Measurement	Range: ± 1999.9 mV		Alarm outputs: 3	
	Resolution: 0.1 mV		Number of relay outputs: 3	
	Relative accuracy: $\pm (0.5 \text{ mV} + 0.1\%)$		Maximum relay load: 250 VAC, 5 A, 30 VDC	
Temperature Measurement	Range: - 10 to 120 °C		Minimum value alarm: YES	
	Resolution: 0.1 °C		Maximum value alarm: YES	
	Relative accuracy: ± 0.5 °C		Error alarm: YES	
	Continuous temperature readings: YES		Calibration/offline alarm: YES	
	ATC probe connection detection: YES		Programmable min & max values: YES	
Specific Ion Calibrations	DKA calibration: YES	Physical Size	Electronics: 144 x 144 x 187 mm	
	DKA calibration points: 3 points		Entire system: 65 x 45 x 27 cm (26" x 17" x 11")	
	Offline calibration: YES		Fits on 1817HL panel mounting footprint.	
	Offline calibration points: 1 point	Power	Input: 85-132 or 170-264 V AC	
	Pre-programmed standard values: YES		Software Features	Self-test & diagnostics: YES
	Custom programmed standard values: YES			Real time clock: YES
Sample Conditions	Temperature: 5 to 35 °C			Meter serial number: YES
	Total alkalinity: Less than 50 ppm CaCO_3		Password protection: YES	
	*Sulfite must not be present in the sample		Programmable alarms: High, low, error, calibration/offline	
	Inlet pressure: 8 to 100 psig		Reset function: YES	
	Flow rate: 40 mL/minute nominal set by pressure regulator	Meter Features	Startup reset: YES	
	Sample inlet: 1/4" NPTF tube fitting		Hardware calibration function: YES	
	Sample drain: 3/4" NPT male		Non-volatile memory: YES	
Grab sampler supported: YES	Battery backup: YES			
Display	Custom backlit LCD with temperature, concentration, mV, error codes and menu driven prompts		Expansion bus: Serial communication & power	
	Inputs	ATC: 2 x NTC 30K	Electronics	Waterproof enclosure: IP66 & NEMA 4X
Specific ion input & reference: Potentiometric		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		

Orion 2117HL Chloride 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.	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
211750HLF	High Level Chloride Consumables Kit — for one year operation, includes chloride standard solutions kit (211740HL), chloride electrode (210017), reference electrode (100057), (1) x 2 oz bottle reference electrode filling solution (900063), O-ring kit (2100OK), 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, (2) x 2 oz bottles chloride standard 2 (2946 ppm) and (1) inlet filter
211740HL	Chloride Standard Solutions Kit — includes (5) x 2 oz bottles of chloride standard 2 (2946 ppm)
2117HLEK	Chloride Electrode Kit — includes chloride electrode (210017), reference electrode (100057) and (1) x 2 oz bottle reference electrode filling solution (900063)
210017	Chloride Sensing Electrode — for use with 2117HL
100057	Chloride Reference Electrode — for use with 2117HL, includes (1) x 2 oz bottle reference electrode filling solution
900063	Reference Electrode Filling Solution — (5) x 2 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
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
2100EC	(2) x 1 meter electrode cables
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)



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