

Real-time chloride level analysis

Maintain proper chloride balance across various industrial applications

Confronted by the many challenges of maintaining a plant's chemistry control, Thermo Fisher Scientific offers an extensive portfolio of water process analytical systems and equipment for chloride measurement needs. The Thermo Scientific™ Orion™ 2117HL High Level Chloride Analyzer yields industry leading performance to measure elevated levels of chloride in real time and maintain optimal balance of water purification.

Equipped with our premium electrode technology for stability, combined with a low maintenance fluidic design and reagent-less system, the Orion 2117HL Analyzer provides high performance results, simply and accurately.

Advantages

- No reagent required for analysis
- Fast and highly accurate calibration has the system back online in minutes
- Enhanced electrode technology offers long lasting reliability and accuracy
- No moving parts allows 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
- Seawater cooled condenser leak detection
- Boiler water
- Agricultural water



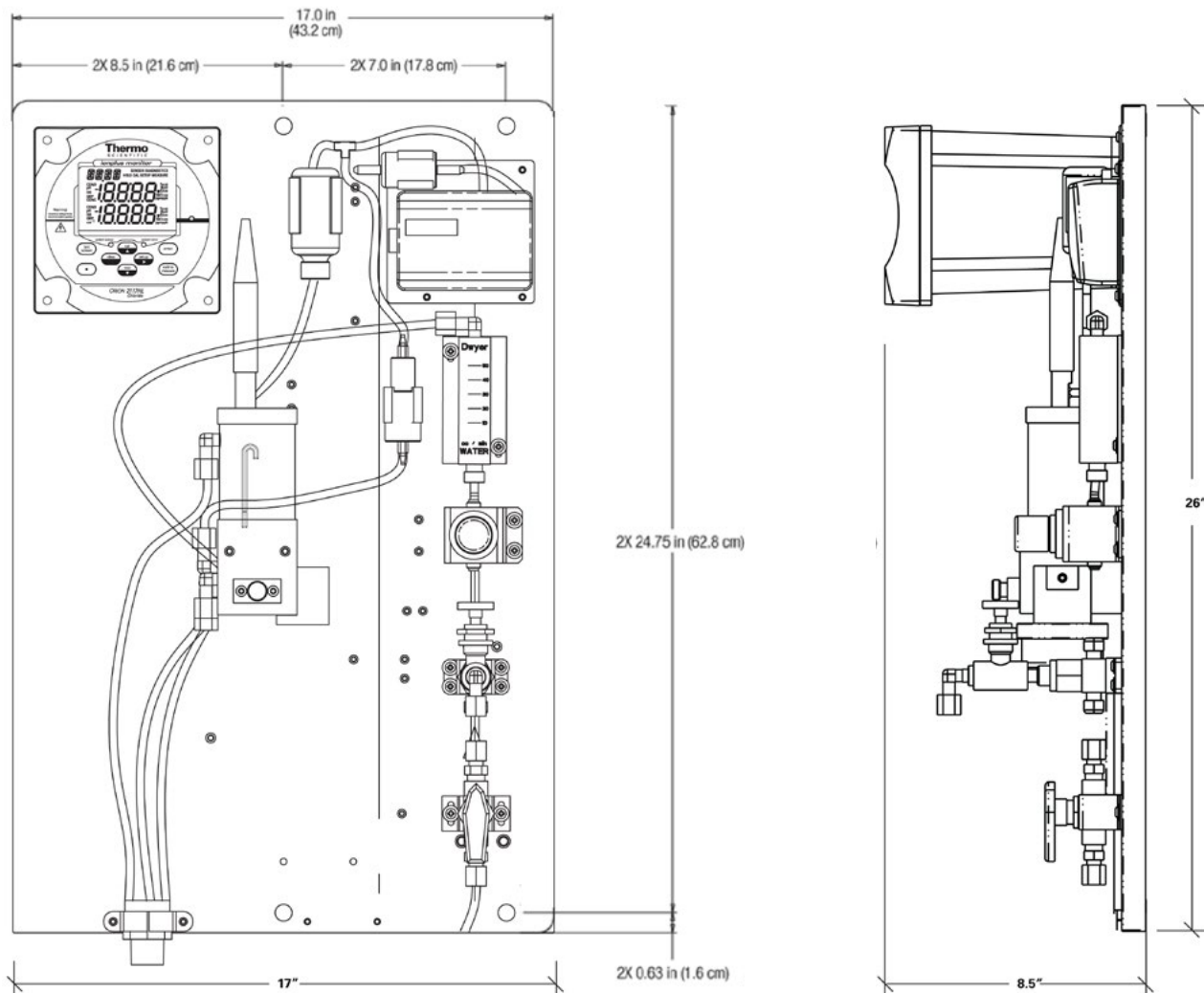
Orion 2117HL High Level Chloride Analyzer

Features

- Detection range of 75 ppm to 1000 ppm offers continuous chloride monitoring in a wide variety of samples
- Simple step-by-step scrolling instruction for setup, calibration, operation and diagnostics menus are 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 provides fast and stable measurements, limiting unnecessary calibration cycles due to drift
- Minimize operator time and maintenance without 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 securely and quickly get the system back online
- Retrofittable to the Thermo Scientific™ Orion™ 1817HL Analyzer panel mounting footprint
- Modus® communication card available

Dimensions

Orion 2117HL 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: 75 ppm to 1000 ppm
	Resolution: 2, 3 or 4 digits
	Accuracy (with DKA cal): $\pm 10\%$
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: $\pm (0.5 \text{ mV} + 0.1\%)$
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 x NTC 30K (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 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
Physical size	Error alarm: Yes
	Calibration/offline alarm: Yes
	Programmable min & max values: Yes
Power	Electronics: 144 x 144 x 187 mm
	Entire system: 65 x 45 x 27 cm (26" x 17" x 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
Electronics	Non-volatile memory: Yes
	Battery backup: Yes
	Expansion bus: Serial communication & power. Modbus card option available
Regulatory and safety	Waterproof enclosure: IP66 & NEMA 4X
	CE, CSA, FCC Class A limits
	Ambient operating temperature: 5 to 45°C
	Relative humidity: 5 to 95% non-condensing
Environmental operating conditions	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

Ordering Information

Description	Cat. No.
Chloride analyzer packages	
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	2117HLEN
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	2117HL
Accessories and electrodes	
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)	211750HLF
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
Chloride Standard Solutions Kit – includes (5) x 2 oz bottles of chloride standard 2 (2946 ppm)	211740HL
Chloride Electrode Kit – includes chloride electrode (210017), reference electrode (100057) and (1) x 2 oz bottle reference electrode filling solution (900063)	2117HLEK
Chloride Sensing Electrode – for use with 2117HL	210017
Chloride Reference Electrode – for use with 2117HL, includes (1) x 2 oz bottle reference electrode filling solution	100057
Reference Electrode Filling Solution –(5) x 2 oz bottles, for use with 100057 reference electrode	900063
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
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

Field replaceable units Refer to user guide for complete list	
2100 series enclosure	2100EN
Fluidics panel assembly only	2100FP
Steel back panel assembly	2100BP
Inlet valve assembly	2100NV
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
Diverter valve assembly	2100DV
Check valve	2100VC
(2) Inlet filters	181170
Flow cell manifold for 2117HL analyzer	2117HLM
Pressurized needle assembly for reference filling solution bottle	2117PN
O-ring kit	2100OK
(2) x 1 meter electrode cables	2100EC
Fuse kit assembly 115 V	2100FK110
Fuse kit assembly 230 V	2100FK230
Power supply assembly	2100PS
2117HL electronics faceplate	2117HLEP
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)	2117HLSK

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