

Chloride/Sulfate Analyzer

THORNTON
Leading Pure Water Analytics

3000CS Analyzer

Trace sensitivity

Low maintenance

Grab sample capability



Automated Chloride/Sulfate Measurement
Sensitive and Reliable

METTLER TOLEDO

3000CS Analyzer for Detection of Corrosive Contaminants in Water

The METTLER TOLEDO Thornton 3000CS Analyzer is a reliable on-line instrument designed to directly measure chlorides and sulfates in pure water and power cycle chemistry samples. This analyzer enables monitoring of these highly corrosive contaminants to assist in corrosion control and minimizing damage to critical plant equipment. Early, unambiguous detection of trace levels of these contaminants is enabled with minimal operator supervision.

Features

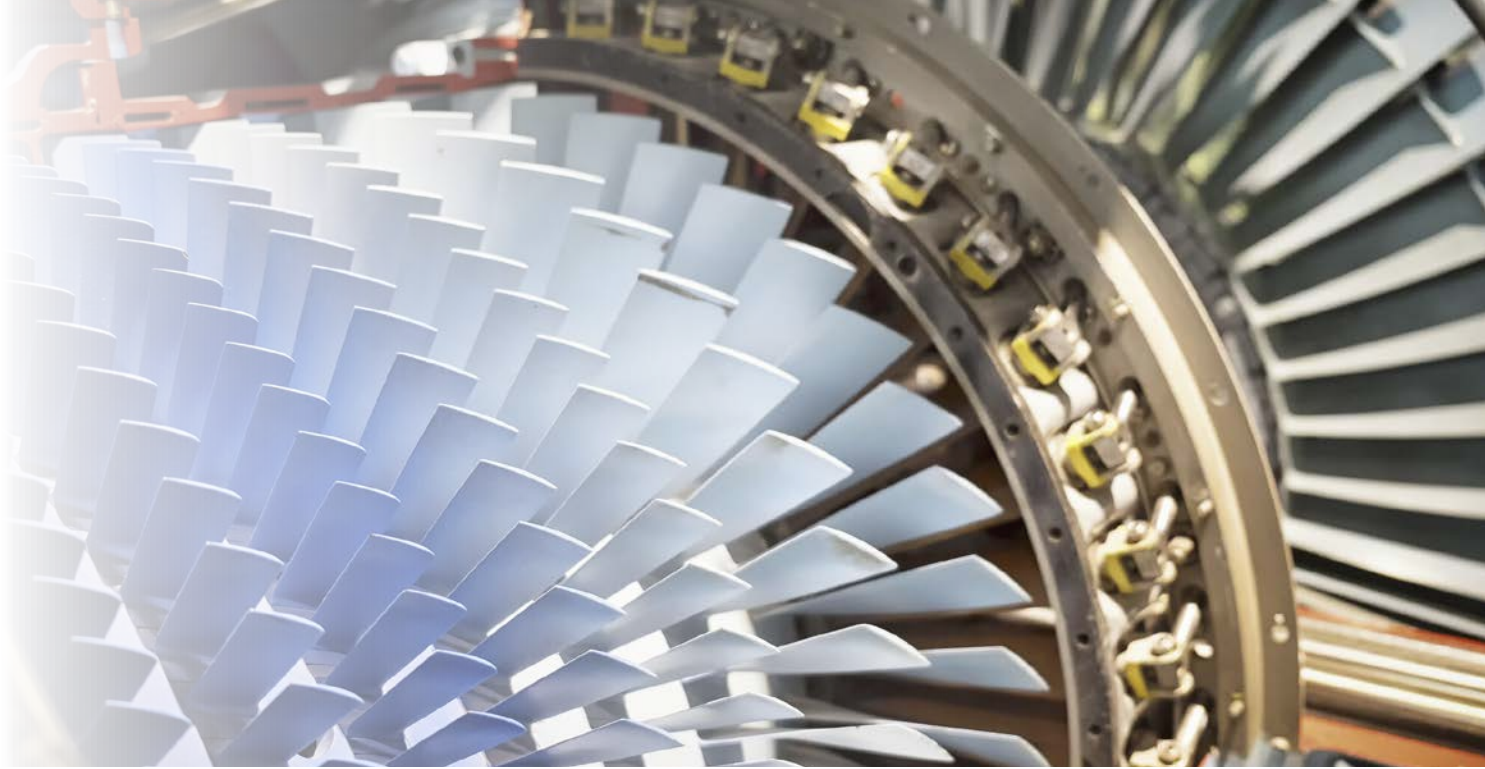
- Intuitive touchscreen interface
- Simultaneous display of ion concentrations and measurement timing
- Analog outputs with choice of scaling
- Convenient grab sample capability
- Full enclosure

Benefits

- Easy operation and display of trendlines for each measurement
- Provides convenient analyzer status at a glance, saving operator time
- Enables easy integration into data acquisition systems
- Allows measurement of additional samples or for QC checks
- Safely protects reagent containers and components from plant environment

Applications

Steam quality monitoring at turbine inlet can assure that the chloride and sulfate levels are under acceptable limits.



Boiler feedwater monitoring to ensure contaminant levels are within limits in the water/steam cycle. Boiler blowdown can be activated if needed to control contaminant levels.

Condensate monitoring at condensate polisher, to detect breakthrough of contaminants and deterioration of sulfonated cation resin.

Makeup water quality monitoring, to ensure that contaminant levels are within acceptable limits before the water is introduced in the water/steam cycle.



3000CS Analyzer

Reliable Operation

Operation

In the analyzer, the sample passes through an overflow assembly that assures a fresh sample is always available at the start of each measurement cycle. The sample is loaded along with a standard and an electrolyte onto a cartridge in the analyzer. The ions of the contaminants are separated by applying high voltage and pass by a conductivity cell, which calculates the concentration of ions based on the conductivity measured.

The measurement is made, the display and outputs are updated and the cycle repeats. The operator can configure the measurement interval to optimize the tradeoff of response time vs. reagent consumption.

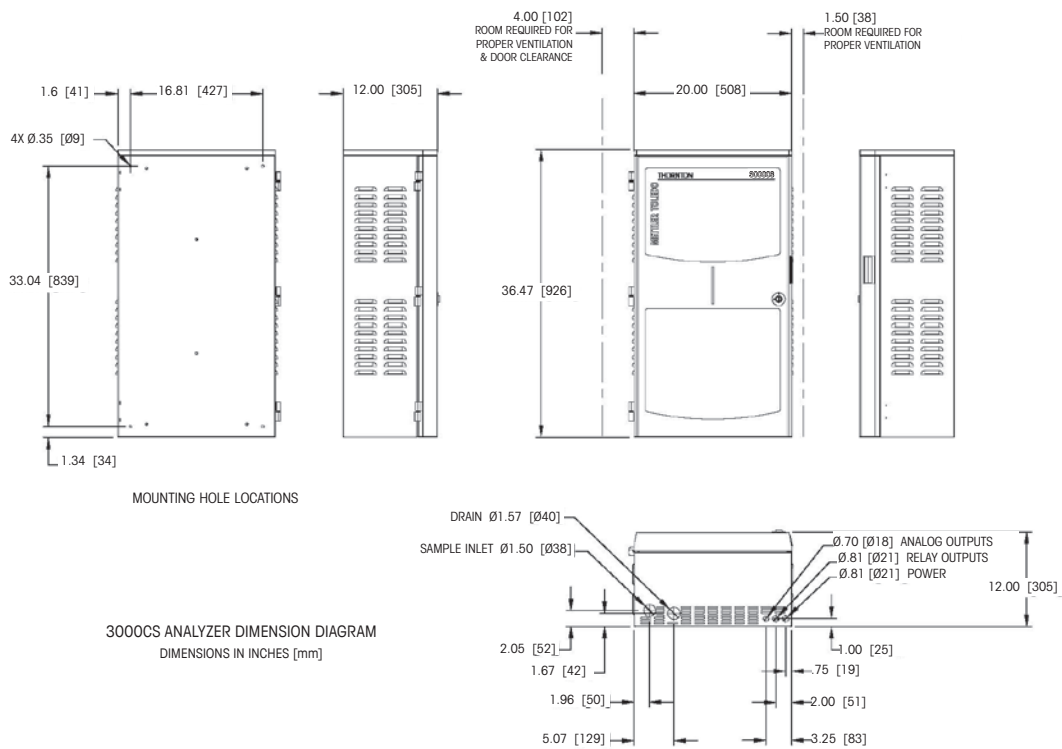
The measurement incorporates Intelligent Sensor Management (ISM[®]) capability which stores identification, calibration and additional sensor data within the sensor.

Calibration

A span calibration can be performed as needed using a known concentration standard.

Installation

The analyzer is provided with a full dust and drip resistant locking enclosure that protects the reagents and measurement components from the plant environment.



Note: Allow 100mm [4in] on left of analyzer for door opening. Allow 38mm [1.5in] on right for ventilation

3000CS Analyzer

Product Specifications

Measurement	
Range	0 - 300 ppb
Limit of detection	Chloride: 0.5 ppb Sulfate: 1 ppb
Accuracy	Chloride: $\pm 5\%$ of reading ± 0.5 ppb, typical Sulfate: $\pm 5\%$ of reading ± 1 ppb, typical
Measurement cycle time	45 min typical, programmable between 15 minutes and 1 hour
Sample flowrate	25 - 50 mL/min
Sample temperature	10 - 45 °C (50 - 113 °F)
Sample pressure	0.3 - 7 bar(g) (5 - 100 psig)
Grab sample measurement	100 mL capacity



Outputs

Analog outputs	8 Powered 0/4 - 20 mA, 22 mA alarm, 500 ohm max load, not for use with externally powered circuit
Analog output accuracy	±0.05 mA
Analog output scaling	Linear, bi-linear, logarithmic (1,2,3,4 decades), auto ranging
Relay contacts	Mechanical rated at 250 VAC, 3 Amps (Relay 1 NC, Relay 2 to 4 NO), 4-SPDT Type Reed 250 VAC or DC, 0.5 Amps (Relay 5 to 8)

Installation/Power/Enclosure

Operator interface	Color touchscreen; simultaneous display of ion concentrations and analyzer status
Process connections	Sample inlet: 1/4" or 6 mm OD tube SS compression fitting Drain hose: 19 x 25.4 mm (¾ x 1"), 2 m (6 ft) length included
Power	100 - 240 VAC, 50 - 60 Hz, 100 W typical
Dimensions HWD:	927 x 508 x 305 mm (36.5 x 20.9 x 12")
Weight	44 kg (97 lbs)
Ambient operating temperature	10 - 35 °C (50 - 95 °F)
Humidity	10 - 70% non-condensing
Ratings/approvals	CE, cULus

Specifications subject to change

3000CS Analyzer

Ordering Information

Description	Order No.
3000CS Analyzer	58 044 001
Required Startup Kit for 3000CS Includes 2-month supply of reagents, cartridge, and calibration standard solution.	58 091 400
Conditioning Resin Kit	30 416 018

Service, Spare Parts and Accessories

Consumables, 2 months – reagents, cartridge, calibration standard solution	58 091 401
Kit, calibration	58 091 402
Kit, verification	58 091 407
Cartridge, replacement	58 091 405
Replacement Resin Cartridge	30 416 019

www.mt.com/thornton

Visit for more information

METTLER TOLEDO Group
Process Analytics Division
Local contact: www.mt.com/pro-MOs

Subject to technical changes
©01/2019 METTLER TOLEDO. All rights reserved
ISM is a registered trademarks of the METTLER TOLEDO Group.
58 087 055 Rev E 01/19



Quality certificate.
Development, production and testing to ISO 9001.



CE Compliant



UL listed
Meets Canadian Standards