

# Chloride/Sulfate Analyzer



**THORNTON**  
Leading Pure Water Analytics

## **3000CS Analyzer**

Trace sensitivity

Low maintenance

Grab sample capability

Fully automatic calibration



**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

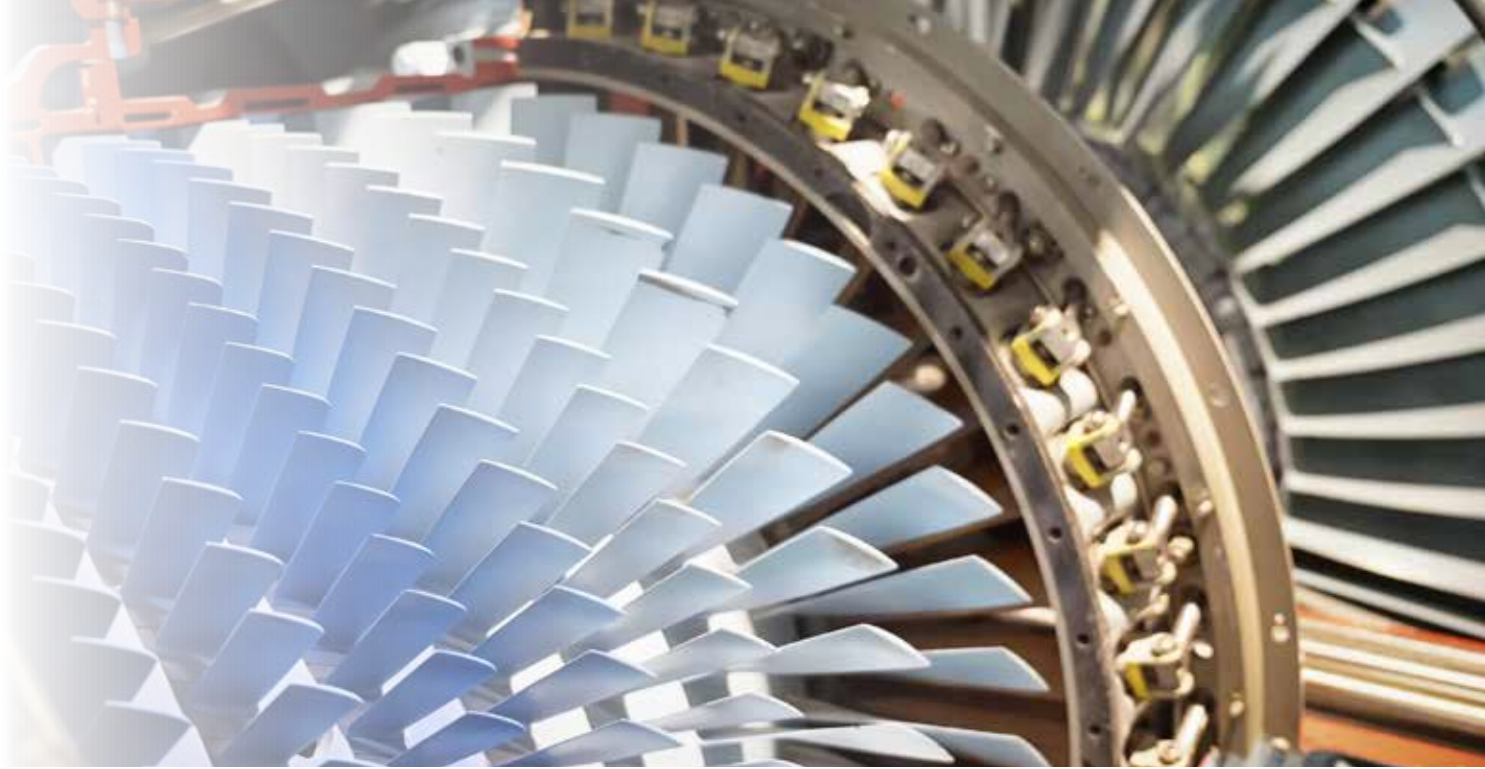
- Intuitive touchscreen interface
- Simultaneous display of ion concentrations and measurement timing
- Automatic calibration
- Analog outputs with choice of scaling
- Convenient grab sample capability
- Full enclosure

## Benefits

- Easy operation and display of trendlines for each measurement
- Provides convenient analyzer status at a glance, saving operator time
- Provides excellent repeatability and saves 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.

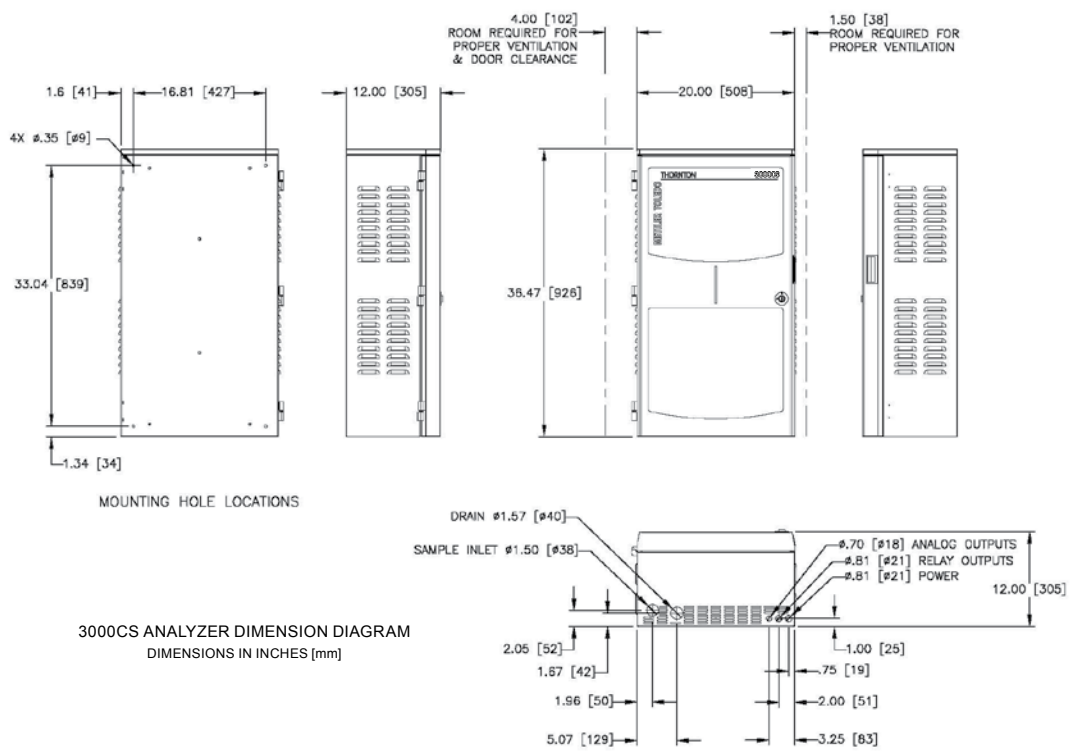
The measurement incorporates Intelligent Sensor Management® capability which stores identification, calibration and additional sensor data within the sensor.

### **Calibration**

An automatic 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

<b>Measurement</b>	
Range	0-500 ppb
Limit of detection	0.5 ppb
Accuracy	Chloride: $\pm 5\%$ of reading $\pm 0.5$ ppb, typical Sulfate: $\pm 5\%$ of reading $\pm 1$ 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 (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 measurement or auto-cal timing status
Process connections	Sample inlet: 1/4" or 6 mm OD tube SS compression fitting Drain hose: 19 x 25.4 mm (3/4 x 1"), 2 m (6 ft) length included
Power	100-240 VAC, 50-60 Hz, 100 W typical
Dimensions HWD:	Enclosure: 927 x 508 x 305 mm (36.5 x 20.9 x 12")
Weight	42 kg (93 lbs)
Ambient operating temperature	10-35 °C (50-95 °F)
Humidity	10-70% non-condensing
Ratings/approvals	CE, cULus pending

Specifications subject to change

# 3000CS Analyzer

## Ordering Information

Description	Order No.
3000CS Analyzer	<b>58 044 001</b>
Required Startup Kit for 3000CS Includes 2-month supply of reagents, cartridge, and calibration standard solution.	<b>58 091 400</b>

### Service, Spare Parts and Accessories

Consumables, 2 months – reagents, cartridge, calibration standard solution	<b>58 091 401</b>
Kit, calibration	<b>58 091 402</b>
Kit, verification	<b>58 091 407</b>
Cartridge, replacement	<b>58 091 405</b>

[www.mt.com/thornton](http://www.mt.com/thornton)

Visit for more information

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