

# Thermo Scientific Orion 2230XP Silica Analyzer

Early online detection of low level silica

Thermo Scientific products are designed to provide fast, accurate and reliable online Silica detection – optimized for any application that requires early detection of low level silica.



When system efficiency is paramount, silica monitoring is a critical measurement. High silica levels can coat internal process components, leading to decreased efficiency, diminished safety, damage, and costly downtime.

Introducing our new Thermo Scientific™ Orion™ 2230XP Silica Analyzer, designed to provide continuous and online measurement of reactive silica to protect mission critical systems.

The optimized design of the Orion 2230XP analyzer is designed to reduce the reagent consumption, which helps reduce the overall cost of ownership.

#### Advantages:

- Low reagent consumption – thanks to a highly optimized, state of the art design.
- Wide range of detection – 0 to 5000 ppb provides a more complete picture of silica intrusion in the process.
- Large, easy to read display – allows for easy viewing in all types of lighting conditions.
- Simple menu navigation – an easy to read and understand menu structure.
- Compact size – capable of being panel- or wall-mounted.
- Intelligent Sample Awareness – Intelligent algorithm that senses the sample to keep the analyzer in a ready state, while offline, for up to 30 days.

#### Markets:

- Power
- Semiconductor
- Pharmaceutical
- Pulp and Paper
- Chemical

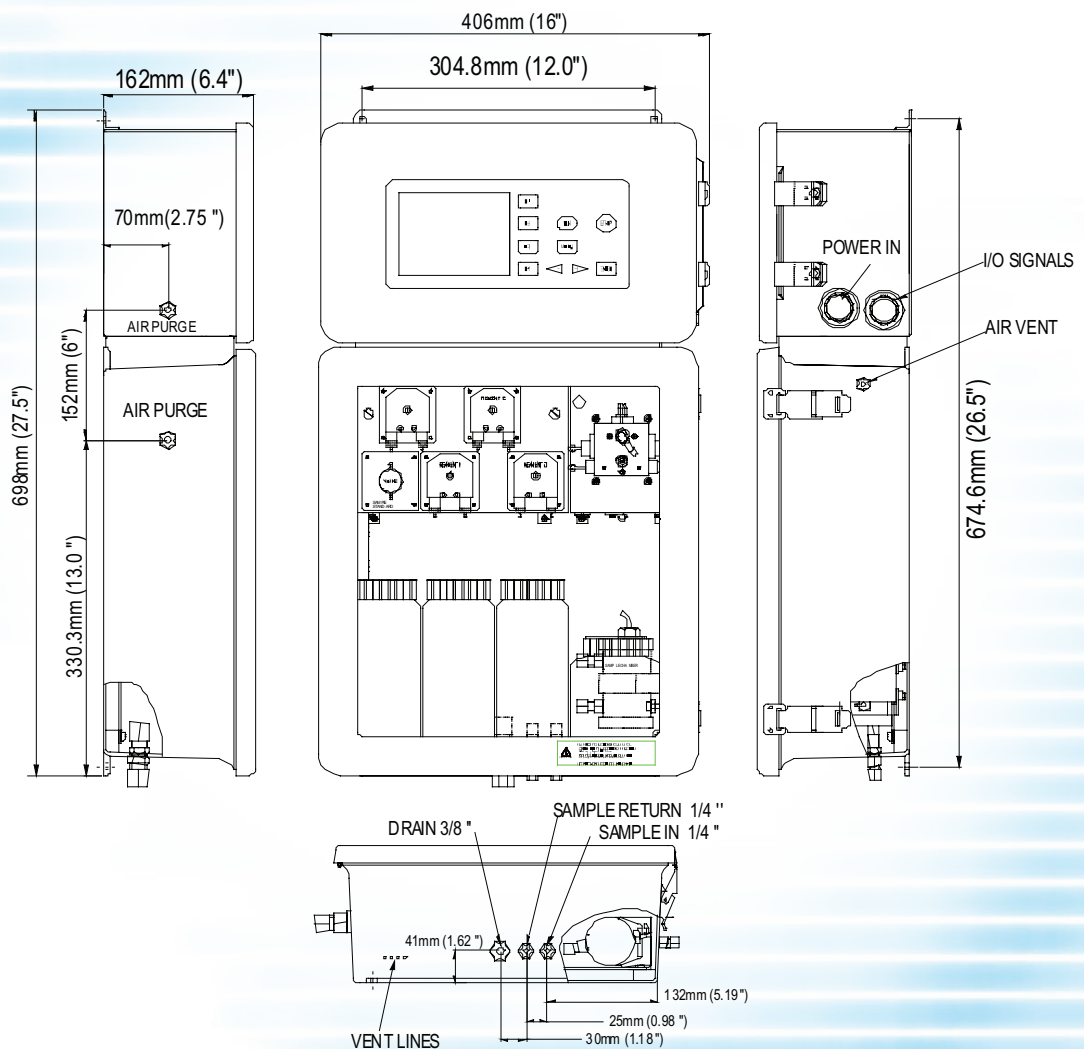
#### Applications:

- Demineralizer
- Boiler water

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## Engineering Specifications

1. The silica analyzer measures silica concentrations using a Heteropoly-molybdenum blue colorimetric method.
2. Measurement is semi continuous and is <15 minutes.
3. The range of measurement is between 0 and 5000 ppb or  $\mu\text{g/L}$ .
4. The detection limit is  $\pm 0.5$  ppb or 5 % of reading, whichever is greater, in the range of 0 – 300 ppb and 10 % of range from 300 – 5000 ppb.
5. Repeatability is  $<\pm 2$  % or  $\pm 0.5$  ppb, whichever is greater, in the range of 0 – 500 ppb and  $<\pm 5$  % or range from 500 – 5000 ppb.
6. Analyzer is capable of auto ranging and auto calibration.
7. Analyzer takes blank samples before every measurement and compares and corrects the measurement against the blank sample.
8. Analyzer provides 2 isolated 4/20 mA outputs and 4 programmable alarm relays. Relays are rated for 5 A @ 240 V AC.
9. Analyzer has an hourly and daily maintenance mode that will move solutions and purge lines to keep the analyzer ready while offline for up to 30 days.
10. Analyzer has a heated sample cell with sample presence detection.
11. Display is a digital graphics LCD with backlight.
12. Sample delivery requirement is between 50 and 100 mL/min.
13. Analyzer is capable of grab sample analysis.
14. Analyzer can be wall or panel mounted.
15. Analyzer fluidics cabinet is constructed to NEMA 4X/IP65. Enclosure is constructed of fiberglass with clear poly windows.
16. Power requirement is 100 – 240 V AC, 100 W, 50/60 Hz, auto-detection.
17. Analyzer has cTUVus approvals to meet UL61010-1 and CSA C22.2 No. 61010-1 certifications and FCC Class A requirement.
18. Analyzer shall meet EC Directives 2006/95/EC and 2004/108/EC.
19. Analyzer is aware of sample availability.



## Product Specifications

<b>Measurement Performance</b>	Measuring Range:	0 – 5000 ppb auto-ranging or user programmable
	Accuracy Error:	Less than 5 % of reading or $\pm 0.5$ ppb, whichever is greater, from 0 to 300 ppb. Less than 10 % of reading from 300 to 5000 ppb.
	Resolution Error:	0.5 ppb in all ranges
	Response Time:	Less than 15 minutes per analysis
	Repeatability Error:	Less than $\pm 2$ % of reading or $\pm 0.5$ ppb, whichever is greater from 0 to 300 ppb. Less than $\pm 5$ % of reading from 300 ppb to 5000 ppb.
	Limit of Detection:	0.5 ppb
	Method:	Optical absorption at 810 nm
<b>Environmental</b>	Ambient Operating Temperature:	0 to 45 °C (32 to 113 °F)
	Maximum Humidity:	90 % at 40 °C (104 °F)
<b>Sample Requirements</b>	Sample Flow:	50 – 1000 mL/min
	Sample Pressure:	5 psi max
	Sample Supply:	Continuous
	Sample Temperature Range:	5 to 40 °C (41 to 113 °F)
	Suspended Solids:	Less than 60 microns
	Sample Inlet/Outlet Connections:	1/4 inch OD flexible tubing – Polypropylene or similar material
	Drain Tubing:	3/8 inch OD flexible tubing – Polypropylene or similar material
Sample Streams:	One	
<b>Construction</b>	Enclosure Integrity:	NEMA12 (Electronics cabinet), NEMA4X (Fluidics cabinet)
	Enclosure Dimensions:	27 inches x 15 inches x 6 inches (695 mm x 395 mm x 158 mm)
	Shipping Weight:	18 kg (40 lbs)
<b>Electrical</b>	Power Requirements:	100-240 V AC, 100 W, 50/60 Hz
<b>Data and Control</b>	Current Loops:	Two 0/4-20 mA – Direct or Reverse Acting (Isolated). Maximum 900 ohm load.
	Relays:	Four SPDT, 5 A @240 V – Programmable
	Digital Comms:	RS232 ASCII protocol for data reporting
<b>Regulatory</b>	Safety:	CE: EN/IEC61010-1, cTUVus
	EMC:	CE: EN61326
	FCC:	Class A



## Orion 2230XP Silica 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](http://www.thermoscientific.com/processwater).

Cat. No.	Description
2230XP	Model 2230XP Silica Analyzer
Cat. No.	Reagent and Standards
2230RE	Reagents 1, 2, and 3. Boxed separately, 1 liter each, 45 day supply
223002	20 ppb Calibration Standard, 0.5 L
223010	100 ppb Calibration Standard, 0.5 L
223020	200 ppb Calibration Standard, 0.5 L
223030	1000 ppb Calibration Standard, 0.5 L

Cat. No.	Maintenance and Service Items
2230XPMK	Maintenance Kit for 2230XP – sample tubing harness, and tubing lubricant
2230PA	3 ea. Pump Head Tubing Covers
2230PS	Power Supply Assembly
2230FS	Power Fuses
2230PI	Air Purge Fittings
2230XPTK	Main Tubing Kit – for 2230XP
2230BC	Empty Auto Cal Bottle (Validation Sample Bottle)
2230SF	Fittings, Sample In, Sample Out and Drain
2230RC	Reagent Bottle Cap – includes fittings
2230SC	Cal Bottle Cap – includes fittings
2230SAC	Sample Chamber



[thermoscientific.com/processwater](http://thermoscientific.com/processwater)

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## Water and Lab Products

## North America

Toll Free: 1-800-225-1480  
Tel: 1-978-232-6000  
[info.water@thermofisher.com](mailto:info.water@thermofisher.com)

## Germany

Tel: (49) 6184-90-6000  
[info.water.uk@thermofisher.com](mailto:info.water.uk@thermofisher.com)

## India

Tel: (91) 22-4157-8800  
[wai.asia@thermofisher.com](mailto:wai.asia@thermofisher.com)

## Japan

Tel: (81) 045-453-9175  
[wai.asia@thermofisher.com](mailto:wai.asia@thermofisher.com)

## China

Tel: (86) 21-68654588  
[wai.asia@thermofisher.com](mailto:wai.asia@thermofisher.com)

## Singapore

Tel: (65) 6778-6876  
[wai.asia@thermofisher.com](mailto:wai.asia@thermofisher.com)

## Australia

Tel: (613) 9757-4300  
In Australia: (1300) 735-295  
[InfoWaterAU@thermofisher.com](mailto:InfoWaterAU@thermofisher.com)

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