

Thermo Scientific Orion 2230 Silica Analyzer

Early online detection of low level silica

Thermo Scientific products 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.

Our Thermo Scientific™ Orion™ 2230 Silica Analyzer provides continuous and online measurement of reactive silica to protect mission critical systems.

Thanks to the optimized design of the Orion 2230 analyzer, reagent consumption is drastically reduced as compared to other systems, thus reducing 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 – smallest total system footprint on the market today, capable of being panel or wall mounted.

Markets:

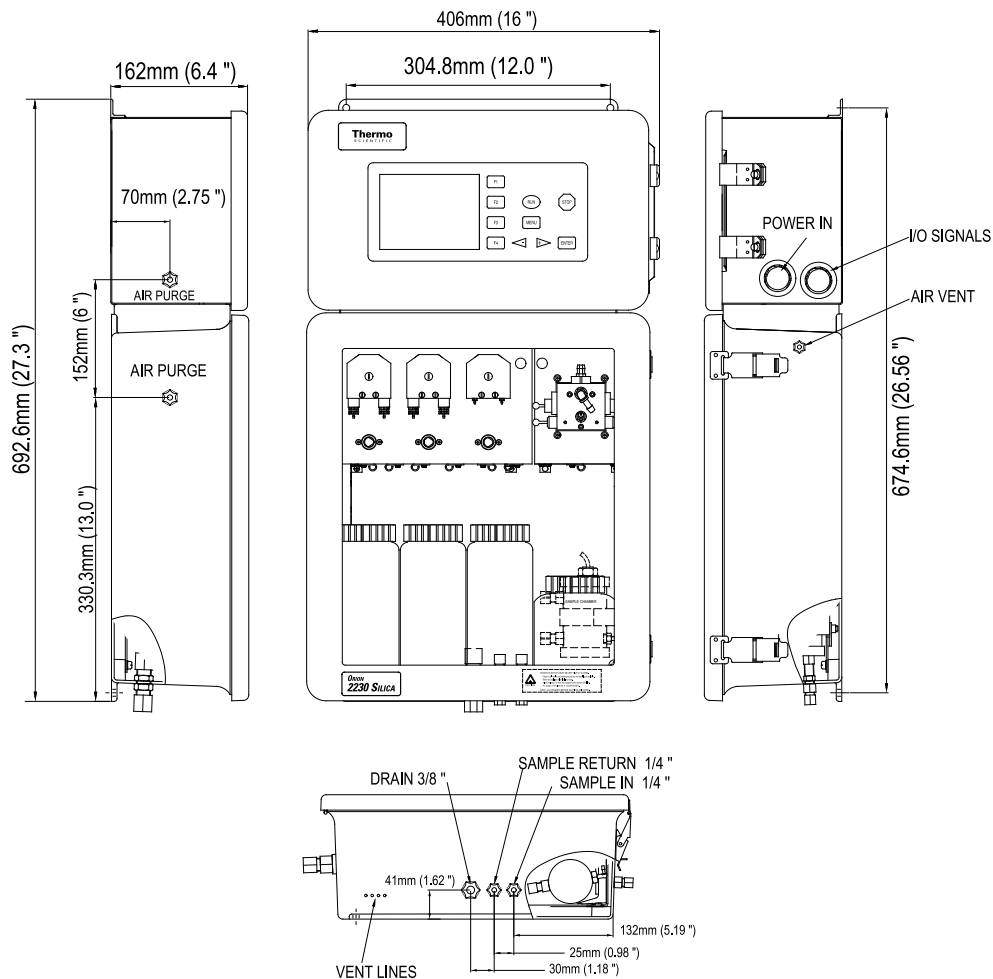
- Power
- Semiconductor
- Pharmaceutical
- Pulp and Paper
- Chemical

Applications:

- Demineralizer
- Boiler water

Engineering Specifications

1. The silica analyzer shall measure silica concentrations using a Heteropoly-molybdenum blue colorimetric method.
2. Measurement shall be semi continuous and be <15 minutes.
3. The range of measurement shall be between 0 and 5000 ppb or $\mu\text{g/L}$.
4. The detection limit shall be ± 0.5 ppb or 5% of reading, which ever is greater, in the range of 0 – 300 ppb and 10% of range from 300 – 5000 ppb.
5. Repeatability shall be $<\pm 2\%$ or ± 0.5 ppb, which ever is greater, in the range of 0 – 500 ppb and $<\pm 5\%$ or range from 500 – 5000 ppb.
6. Analyzer shall be capable of auto ranging and auto calibration.
7. Analyzer shall take blank samples before every measurement and shall compare and correct the measurement against the blank sample.
8. Analyzer shall provide 2 isolated 4/20mA outputs and 4 programmable alarm relays. Relays shall be rated for 5A @ 240V AC.
9. Analyzer shall have a heated sample cell with sample presence detection.
10. Display shall be a digital graphics LCD with backlight.
11. Sample delivery requirement shall be between 50 and 100 mL/min.
12. Analyzer shall be capable of grab sample analysis.
13. Analyzer shall be wall or panel mounted.
14. Analyzer fluidics cabinet shall be constructed to NEMA 4X/ IP65. Enclosure shall be constructed of fiberglass with clear poly windows.
15. Power requirement shall be 100 – 240V AC, 100W, 50/60 Hz, auto-detection.
16. Analyzer shall have cTUVus approvals to meet UL61010-1 and CSA C22.2 No. 61010-1 certifications and FCC Class A requirement.
17. Analyzer shall meet EC Directives 2006/95/EC and 2004/108/EC.



Product Specifications

| | | |
|-------------------------|----------------------------------|---|
| Measurement Performance | Measuring Range: | 0 – 5000 ppb auto-ranging or user programmable |
| | Accuracy Error: | Less than 5% of reading or +/-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 +/-2% of reading or +/-0.5 ppb, whichever is greater from 0 to 300 ppb. Less than +/-5% of reading from 300 ppb to 5000 ppb. |
| | Limit of Detection: | 0.5 ppb |
| | Method: | Optical absorption at 810 nm |
| Environmental | Ambient Operating Temperature: | 0 to 45 °C (32 to 113 °F) |
| | Maximum Humidity: | 90% at 40 °C (104 °F) |
| Sample Requirements | Sample Flow: | 50 – 1000ml/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 |
| Construction | Sample Streams: | One |
| | Enclosure Integrity: | NEMA12 (Electronics cabinet), NEMA4X (Fluidics cabinet) |
| | Enclosure Dimensions: | 27 inches x 15 inches x 6 inches (695mm x 395mm x 158mm) |
| Electrical | Shipping Weight: | 18kg (40 lbs) |
| | Power Requirements: | 100-240V AC, 100W, 50/60Hz |
| Data and Control | Current Loops: | Two 0/4-20 mA - Direct or Reverse Acting (Isolated). Maximum 900 ohm load. |
| | Relays: | Four SPDT, 5A @240V - Programmable |
| | Digital Comms: | RS232 ASCII protocol for data reporting |
| Regulatory | Safety: | CE: EN/IEC61010-1, cTUVus |
| | EMC: | CE: EN61326 |
| | FCC: | Class A |



Orion 2230 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.

| Cat. No. | Description |
|----------|----------------------------|
| 223000 | Model 2230 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 |
|----------|---|
| 2230MK | Maintenance Kit - sample tubing harness, and tubing lubricant |
| 2230PA | 3 ea. Pump Head Tubing Covers |
| 2230PS | Power Supply Assembly |
| 2230FS | Power Fuses |
| 2230PI | Air Purge Fittings |
| 2230TK | Main Tubing Kit |
| 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 |



Thermo Fisher Scientific
Water Analysis Instruments
Chelmsford, MA USA
Quality Management System
Registered to ISO 9001

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