



**Thermo Scientific**  
Power Plant Water Analysis Products

## **Ease of use and reliability**

Fundamentals in chemistry control

Pure water analysis and online monitoring products

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# Power Plant Water Analysis

## Pure Water & Online Monitoring



Reliable long-term operation of a modern power plant requires large quantities of ultrapure makeup water, in addition to recycled water that is almost perfectly conditioned. The reason is simple: Mineral deposits and particulate matter in the boiler feed water and steam generator shorten the life of the turbines, resulting in expensive repairs or replacement.

Ensuring ultra high quality water requires precise measurement of trace impurities at the parts-per-billion level, as well as the tight monitoring and control of conditioning chemicals normally added to avoid corrosion of the turbines, boilers and pipes within the plant.

The key to deposition and corrosion prevention is non-stop, real-time monitoring of trace cations, anions and dissolved gases that can contaminate high-purity water.

Thermo Scientific sensors and online water analyzers meet your needs for water purification, boiler water control, condensate, and effluent applications. Proper chemistry management such as minimization of trace salt and silica contamination, control of dissolved gases like oxygen and ammonia, and maintenance of pH ranges not only prevent costly and unscheduled outages, but also greatly extend the useful lifetime of the plant.

### Water analysis concerns:

- Boiler water chemistry
- Boiler water and feed water treatment
- Steam carryover and contamination by sodium
- Sodium in condensate
- Deaerator outlet for oxygen concentration
- Sodium and silica breakthrough on demineralizers or calcium hardness breakthrough on softeners
- pH and conductivity at various points

## Featured Products



Thermo Scientific™ Orion™ 2111XP Sodium Analyzer

- Application packages available: Ammonia, Diisopropylamine (DIPA) and Cation/High Acid
- Stable, drift-free measurements are designed to eliminate the need for frequent calibration



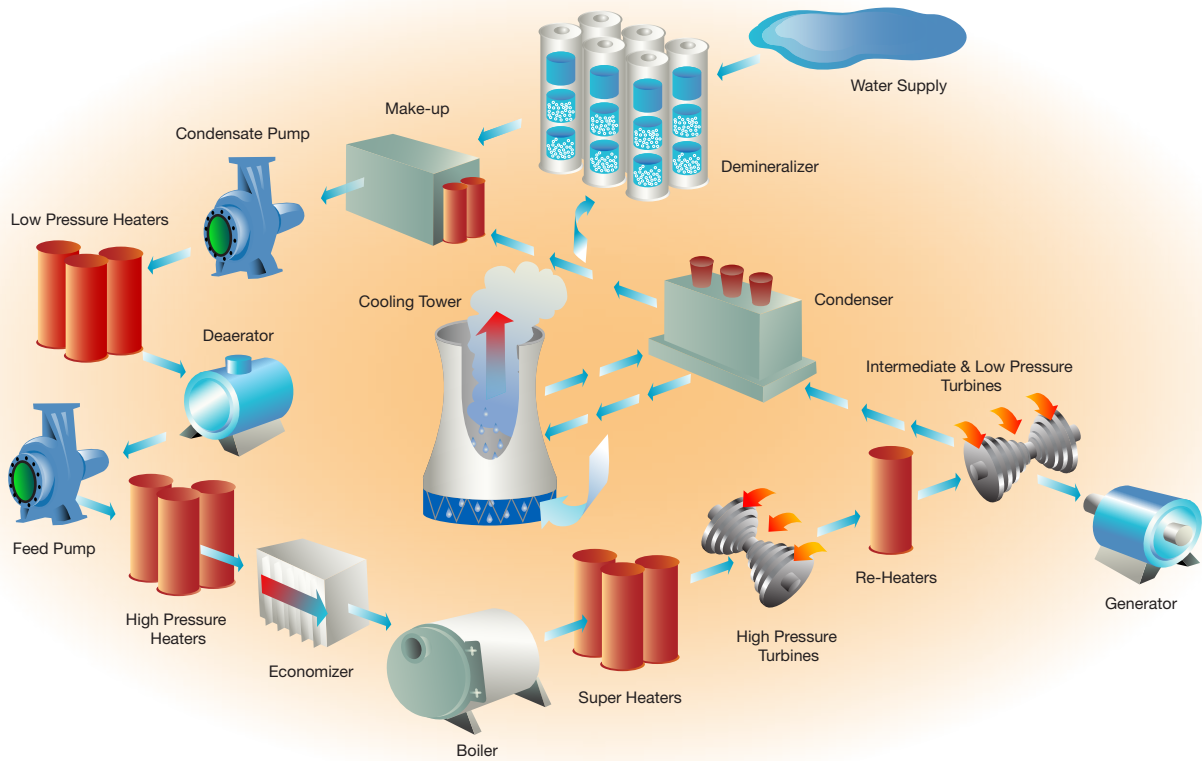
Thermo Scientific Orion 2230 Silica Analyzer

- Saves costs with low reagent consumption
- Wide detection range – 0 to 5000 ppb – for complete picture of silica intrusion
- Easy to use with simple menu navigation
- Compact footprint



Thermo Scientific Orion 2395 Phosphate Analyzer

- Standard colorimetric method for 0.2-50 ppm detection range
- Low reagent consumption - lower operation costs
- Easy to use with simple menu navigation
- Compact footprint



### Thermo Scientific Products for Power Plant Water Treatment:

Pure Water Production	Boiler Feed Water	Condensate	Cooling Water Effluent	Deaerator	Boiler Water/Blowdown
<ul style="list-style-type: none"> <li>Orion 2111LL Low Level Sodium Analyzer</li> <li>Orion 2111XP Sodium Analyzer</li> <li>Orion 2230 Silica Analyzer</li> <li>Orion™ 2001SC High Purity ROSS™ pH Electrode and Low Level Conductivity Cells</li> <li>AquaSensors™ DataStick™ AquaTrace™ Dissolved Oxygen System</li> </ul>	<ul style="list-style-type: none"> <li>Orion 2118XP Oxygen Scavenger Analyzer</li> <li>Orion 2110XP Ammonia Analyzer</li> <li>Orion 2111LL Low Level Sodium Analyzer</li> <li>Orion 2001SC High Purity ROSS Combination Electrode</li> <li>Low Level Conductivity Cells</li> <li>AquaSensors DataStick AquaTrace Dissolved Oxygen System</li> </ul>	<ul style="list-style-type: none"> <li>Orion 2111LL Low Level Sodium Analyzer</li> <li>Orion 2001SC High Purity ROSS pH Combination Electrode and Low Level Conductivity Cells</li> </ul>	<ul style="list-style-type: none"> <li>AquaSensors™ AquaChlor™ Free Chlorine Monitoring System</li> <li>Orion™ Chlorine XP™ Water Quality Analyzer</li> </ul>	<ul style="list-style-type: none"> <li>Orion 2118XP Oxygen Scavenger Analyzer</li> <li>Orion 2001SC High Purity ROSS pH Combination Electrode and Low Level Conductivity Cells</li> </ul>	<ul style="list-style-type: none"> <li>Orion 2230 Silica Analyzer</li> <li>Orion 2395 Phosphate Analyzer</li> <li>Orion 2117LL Low Level and Orion 2117XP Chloride Analyzers</li> <li>Orion 2001SC High Purity ROSS pH Combination Electrode and Low Level Conductivity Cells</li> </ul>



Thermo Scientific Orion 2001SC High Purity ROSS pH Electrode

- Drift-free patented ROSS reference system, with precision of 0.02 pH
- Designed to provide reliable, reproducible results in high purity samples
- Fast response for online pH electrodes



Thermo Scientific Orion Chlorine XP Online Water Quality Analyzer

- Measures free, total and total combined chlorine
- Simple, quick installation and operation
- Auto calibration and auto self-cleaning
- Low maintenance, more on-line operation
- Simple, quick reagent replacement



Thermo Scientific Orion 2117LL Low Level Chloride Analyzer

- Detects chloride in real-time – providing accurate & reliable results
- One of the few real-time monitors on the market capable of reading down to 5ppb
- Simple operation and minimal maintenance required – no moving parts

For complete product details, access our interactive catalog at [thermoscientific.com/watercatalog](http://thermoscientific.com/watercatalog)



## Leaders in Sensing Technology

From supplying safe drinking water or reliably controlling wastewater treatment processing, to delivering significant value to industrial water treatment providers – our water experts can help you meet your application challenges. Thermo Scientific process water analysis measurement products are designed for flexibility, ease of use, and low cost of operation in water treatment, delivering accuracy you can trust with confidence year after year. Select from our digital plug-and-play systems, advanced optical DO sensors, and a broad portfolio of differential and analog measurement capabilities to build your water quality solution.



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