Thermo Scientific
Orion 2100 Series pH/ORP & Conductivity Analyzers
Single, dual or combined pH/ORP and conductivity measurement

Designed for the highest accuracy and performance — our systems have flexible measurement parameters for single, dual or combined pH/ORP and conductivity inputs, also offered with optional digital communications. Have your mission critical process in complete control with ease!

Markets:
- Power Generation
- Pulp and Paper
- Bottled/Municipal Water
- Wastewater
- Process Water
- Industrial Water

Applications:
- High Purity Applications to Wastewater Effluent
- Rugged Industrial Environments
- Process Optimization and Control Applications

Our Thermo Scientific™ Orion™ 2100 series analyzers for pH/ORP, conductivity/resistivity or a combination of both provide accurate and reliable measurements in the harshest industrial environments. Offered in single channel or dual channel configurations, all with optional digital communication protocols, these analyzers set a new standard for ease-of-operation and measurement reliability. Combined with decades of superior Thermo Scientific Orion sensor technology, our systems provide rapid results with complete stability. The large bright backlit LCD provides a 3 line parameter display that includes scrolling text for menu driven measurement and calibration prompts. The rugged ½ DIN chemically resistant enclosure offers NEMA 4X IP 65 protection while maintaining a small footprint for ease of installation in a panel (standard mounting) or for pipe mounting. Multi-level password protection offers the necessary security for data integrity. Supervisor to operator level access protects customized setup parameters and allows for read only access for measurement, calibration and diagnostic logs, thus preventing accidental changes or unintended modifications from occurring. Security in your measurement results has never been easier. Developed over decades of expertise in ultra pure water analysis, our measurement and temperature compensation algorithms provide the highest level of accuracy across the most difficult high purity measurements. Understanding the challenges of cycle chemistry, our system provides cation and ammonia/ETA compensation for customizing to your plant’s requirements.
Additionally, when deionized water production requires compensation for HCl, NaOH, and H2SO4, the 2100 series analyzers perform without exception every time. Measurement output can be configured across four galvanically isolated 0-20 or 4-20 mA outputs per dual channel configuration. Access to data and system performance is fast and easily understood across a wide variety of skill levels. The 2100 series analyzers’ step-by-step scrolling text leads you through the quick calibration and setup submenus, ensuring success with each key press. Maximizing your process control potential with the highest quality measurements is now simpler than ever before using the 2100 series pH/ORP and conductivity analyzers. Take a look at how we continue to set the pace:

**Product Benefits**

Single and dual channel configurations available for pH/ORP and conductivity — or a combination of both offers flexibility for loop requirements.

- **Easy to operate and calibrate** — the system walks you through the step-by-step calibration process, ensuring a successful calibration the first time and every time.
- **Fastest, most stable measurements, limiting unnecessary calibration cycles due to drift with superior Orion sensor technology**.
- **Flexible temperature compensation inputs suitable for use with a wide variety of sensors using NTC30K, PT1000 or PT100**.
- **Expandable platform** — single channel add on boards for second channel analysis for pH/ORP or conductivity add measurement loops with plug in ease.

**Product Specifications**

<table>
<thead>
<tr>
<th>pH Measurement (for 2102PH analyzers only)</th>
<th>mV/ORP Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
<td>±1999 mV</td>
</tr>
<tr>
<td>Resolution</td>
<td>1 mV</td>
</tr>
<tr>
<td>Relative Accuracy</td>
<td>± (0.5 mV + 0.1 %)</td>
</tr>
<tr>
<td>EH ORP Mode</td>
<td>YES</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Temperature Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
</tr>
<tr>
<td>Resolution</td>
</tr>
<tr>
<td>Relative Accuracy</td>
</tr>
<tr>
<td>Temperature Display</td>
</tr>
<tr>
<td>Temperature Compensation</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Resistivity Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range</td>
</tr>
<tr>
<td>Resolution</td>
</tr>
<tr>
<td>Relative Accuracy</td>
</tr>
</tbody>
</table>

Note: Specifications listed for single channel measurement specific analyzers, dual channel configurations — digital communications options available, see ordering information.
### pH Calibration
- pH Auto-Calibration: YES
- pH Manual Calibration: YES
- Number of pH Calibration Points: 1 to 3
- Buffers Recognized: US, EURO
- Calibration Type: Point to point

### mV/ORP Calibration
- Relative mV: YES
- EH ORP: YES

### Conductivity Calibration
- Conductivity Cell Constant: YES, 1 point
- Conductivity Direct-Cal: 1 to 3 points
- Conductivity Auto-Cal: 1 to 3 points

### Display
- Type: Custom LCD, backlit with scrolling text

### Inputs
- Conductivity Probe: Tinned leads to screw terminal
- ATC: 30 K ohm, PT100, PT1000
- pH Electrode: Tinned leads to screw terminal

### Outputs
- Analog Output: YES, galvanically isolated
- Number of Analog Outputs: 2 per single channel, 4 per dual channel
- Output Selections: 0-20 mA or 4-20 mA
- Programmable Range: YES
- Conductivity Log and Linear Output Options: YES, user selectable

### Alarm Outputs
- Number of Relay Outputs: 3
- Max Relay Load: 250 V AC/5 A, 30 V DC/5 A
- Minimum Value Alarm: YES
- Maximum Value Alarm: YES
- Error Alarm: YES
- Offline/Calibration Alarm: YES
- Programmable Min & Max Values: YES
- Programmable Alarms: High, low, error, cal/offline

### Power
- Power Input: 100-120 @ 200mA 50/60Hz
- Shock and Vibration
  - Vibration, Shipping/Handling: 0 to 60 Hz @ 1 G load
  - Shock, Drop Test in Packaging: Conforms to ISTA 1A protocol

### Rolling Measurement Data Logging
- Number of Data Logging Points: 1000 points
- Log Function: Timed
- Timed Log: Time (1 min to 99:59 hours)

### Rolling Event Data Logging
- Number of Data Logging Points: 100 points
- Log Function: Error, calibration, conf, power, alarm, offset
- Log View: YES

### Special Log/Storage Modes
- Calibration Log: Last 12 calibrations

### Software Features
- Meter Serial Number: YES
- Password Protection: YES
- Reset Function: YES
- Modbus (with purchase of optional communications board): YES

### Meter Feature
- Startup Reset: YES
- Hardware Calibration Function: YES
- Non-Volatile Memory: YES
- Battery Backup: YES
- Regulatory and Safety: CE, CSA, FCC Class A limits
- Electronics Waterproof Enclosure: IP66, NEMA 4X

### Environmental Operating Conditions
- Ambient Operating Temperature: 5 to 45 °C
- Relative Humidity: 5 to 95% non-condensing
- Storage Temperature: -20 to 60 °C
- Storage Humidity: 5% to 95%, non-condensing
- Case Material: Valox 364
- Physical Size: 144 mm x 144 mm x 186 mm

### Shock and Vibration
## Product Ordering Information

### Orion 2100 Series pH/ORP and Conductivity Analyzers

**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

<table>
<thead>
<tr>
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<th>Description</th>
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<tbody>
<tr>
<td>2102PH</td>
<td>2102PH single channel pH/ORP analyzer only</td>
</tr>
<tr>
<td>2102PH1SC</td>
<td>2102PH single channel analyzer and ultra pure water (UPW) pH kit, includes flow cell, 2001SC ROSS™ pH electrode, 5 meter electrode cable (2001SM), ATC probe, PT1000 (2001TM), and buffers (pH 4, 7 and 10)</td>
</tr>
<tr>
<td>2102PH1X</td>
<td>2102PH single channel analyzer and ORP kit, includes ORP electrode (110250) and ORP standard (967901)</td>
</tr>
<tr>
<td>2102PH2</td>
<td>2102PH dual channel pH/ORP analyzer only</td>
</tr>
<tr>
<td>2102PH2SC</td>
<td>2102PH dual channel analyzer and ultra pure water (UPW) pH kit, includes (2) flow cells, (2) x 2001SC ROSS pH electrodes, (2) x 5 meter electrode cables (2001SM), (2) x PT1000 ATC probes (2001TM) and buffers (pH 4, 7 and 10)</td>
</tr>
<tr>
<td>2102PH2X</td>
<td>2102PH dual channel analyzer and ORP kit, includes (2) x ORP electrodes (110250) and ORP standard (967901)</td>
</tr>
<tr>
<td>2104CD</td>
<td>2104CD single channel conductivity analyzer only</td>
</tr>
<tr>
<td>2104CD1SS</td>
<td>2104CD single channel analyzer and ultra pure water (UPW) conductivity kit, includes 2002SS conductivity cell, flow cell (2002FC) and 100 µS/cm conductivity standard (011008)</td>
</tr>
<tr>
<td>2104CD2</td>
<td>2104CD2 dual channel conductivity analyzer only</td>
</tr>
<tr>
<td>2104CD2SS</td>
<td>2104CD dual channel analyzer and ultra pure water (UPW) conductivity kit, includes (2) x 2002SS conductivity cells, (2) flow cells (2002FC) and 100 µS/cm conductivity standard (011008)</td>
</tr>
<tr>
<td>21PHCD2</td>
<td>2100 series dual channel pH/ORP and conductivity analyzer only</td>
</tr>
<tr>
<td>2102PHEP</td>
<td>2100 pH/ORP electronic faceplate - main channel</td>
</tr>
<tr>
<td>2104CDEP</td>
<td>2100 conductivity electronic faceplate - main channel</td>
</tr>
<tr>
<td>2100PH2</td>
<td>Second channel module for pH/ORP</td>
</tr>
<tr>
<td>2100CD2</td>
<td>Second channel module for conductivity</td>
</tr>
<tr>
<td>2100DC</td>
<td>Digital communication module Modbus RTU protocol</td>
</tr>
<tr>
<td>2001FC</td>
<td>Flow cell for 2001SC ROSS pH electrode</td>
</tr>
<tr>
<td>2100AMP</td>
<td>Pre-amp for 2100 series analyzers - with automatic temperature recognition</td>
</tr>
<tr>
<td>2100SMK</td>
<td>Sample panel mounting kit</td>
</tr>
<tr>
<td>2100PMK</td>
<td>Pipe mounting kit</td>
</tr>
</tbody>
</table>

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