# Modern design, advanced performance

Thermo Scientific Orion Pro Star PH211 pH/ORP Bench Meter




## Benefits

- Large 7-inch, high-resolution color display
- Responsive capacitive touchscreen operable with gloves
- Angled display to help ensure ergonomic viewing
- Streamlined, easy to operate user interface
- Vertical meter orientation helps optimize bench space
- Supports GLP compliance
- Stores 20 calibration logs per parameter with date and time
- Stores 10,000 data log sets with date and time
- Outputs to a printer, computer, or USB flash drive for long-term data retention
- Inputs sample ID with optional USB barcode scanner, USB keyboard, or USB mouse
- Optional meter-controlled and meter-powered stirrer probe

Discover the Thermo Scientific™ Orion™ Pro Star PH211 pH/ORP bench meter. Designed to help provide accurate, reliable electrochemistry testing, the Orion Pro Star PH211 is well suited for laboratories that require trustworthy measurement capabilities. Featuring an intuitive interface, enhanced data reporting and robust functionality, the Orion Pro Star PH211 delivers advanced performance in a modern and simplified package. The Orion Pro Star PH211 measurement parameter capabilities include:

- pH, mV or ORP with temperature

Easily control the expansive 7-inch color touchscreen display. The Orion Pro Star PH211 presents a thoughtfully designed interface to give you everything you need at your fingertips. Seamlessly navigate to view measurements, complete calibrations, export data, and more on the crystal clear, high-resolution screen. Equipped with an ergonomic angled display, users can view key details clearly and comfortably. A responsive touchscreen helps ensure optimal usability in a variety of environments, even when a gloved hand is required.

Built to help meet the needs of your testing preferences, the Orion Pro Star PH211 empowers flexibility. Measurements can be viewed in a basic, advanced or customized format. The basic format provides a streamlined look at measurements, whereas the advanced layout provides a more detailed view. Alternatively, users can opt to display or hide elements to their liking via a customized layout. Individual measurements can also be viewed in a graph with temperature for measurement versus time studies.

Enhance convenience and efficiency with the assistance of optional meter accessories. While conducting measurements, easily input sample identification details using a USB barcode scanner, USB keyboard, or USB mouse. Eliminate the need for magnetic stir plates and bars by adding a meter-controlled stirrer probe to help achieve uniform sample stirring.

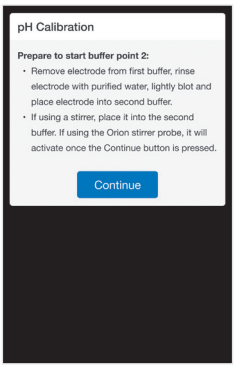
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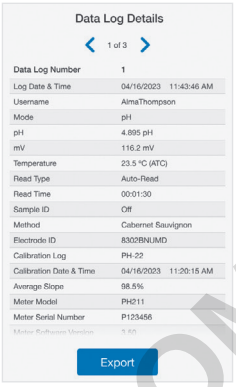
# Features designed with you in mind



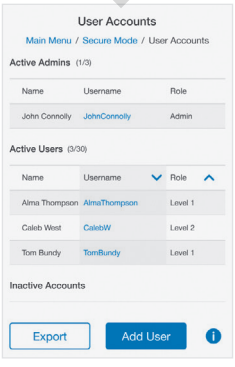

Calibration tour and guide




Guided calibration instructions




Detailed data log view




Secure mode user accounts

## Seamless setup

First-time meter startup is made easy with the Orion Pro Star. The onscreen setup wizard guides users through important meter and measurement settings, providing onscreen meter tours and guides for calibration, measurements, meter connections, electrode stand assembly, and pH electrode usage.

## Confident calibrations

Guided calibrations offer step-by-step instructions to assist users with performing calibrations correctly, helping to ensure accurate, reliable and reportable measurements. The meter's calibration log saves, displays and exports up to 20 calibrations per parameter with date and time stamps. Calibration logs are filterable by user and exportable by date range, or all at once.

## Dependable data

Measurements can easily be saved to the data log for long-term data retention with the Orion Pro Star. The data log saves, displays and exports up to 10,000 data sets with date and time stamps. Individual data log sets offer extensive measurement information organized into an easy-to-read onscreen list format. Data log sets are filterable by user, date and time, or log number, and exportable by date and time range, log number range, or all at once.

## Meaningful methods

Methods offer the option to save measurement settings to standardize your analyses and SOPs on the Orion Pro Star. Up to 10 methods can be saved per channel and methods can be imported and exported to and from other Orion Pro Star bench meters.

## Reliable records

The secure mode feature included on the Orion Pro Star allows up to three administrators and 30 users individual account logins with password protection. Administrators can select from pre-defined user access levels to meter functions. Control access to date and time settings, instrument settings, data logs, and calibration logs, or customize each user's access level from full access to basic data collection only. Administrators can also export the user list and audit trail to help ensure digital data integrity.

## Organized output

Output data logs, calibration logs and methods to a printer, computer, or USB flash drive for long-term data retention on the Orion Pro Star. Data can be saved as report files for easy viewing or comma separated value (CSV) files for import into programs like Microsoft Excel. Exported files can be customized to include all data, advanced data, intermediate data or basic data only, allowing each user to obtain the exact information they need. The Orion Pro Star also offers bidirectional communication with remote commands for meters interfacing with computer programs, including LIMS, HyperTerminal, PuTTY, and additional data collection software.

## Custom calibrations

For pH calibrations, the Orion Pro Star provides the option to perform flexible one- to five-point calibrations or set a required number of calibration points from one to four. Users may also input adjustable slope guidance with the option to define Excellent, Fair and Bad slope ranges to facilitate an easier understanding of calibration results.

## Hassle-free holder

The electrode stand included with the Orion Pro Star facilitates secure, smooth movement of electrodes into and out of solutions. A weighted base provides flexible placement of the stand in proximity to the meter. Numerous electrode holder options secure a wide range of electrode types. Built-in side channels allow electrode cables to be neatly organized inside of the stand.

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# Key features




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## Product specifications

| pH | |
|---|---|
| Range | –2.000 to 20.000 pH |
| Resolution | 0.1, 0.01 or 0.001 pH |
| Relative accuracy | ± 0.002 pH |
| Calibration points | 1 to 5 points |
| Calibration method | Automatic buffer recognition, manual entry option |
| Calibration buffer sets | USA (1.68, 4.01, 7.00, 10.01, 12.46); DIN (1.68, 4.01, 6.86, 9.18, 12.46); Pure Water Buffers (4.10, 6.97, 9.15); Standard (1.00, 3.00, 6.00, 8.00, 10.00, 13.00); up to 5 custom buffers |
| Slope type | Linear or segmented |
| Calibration summary | Slope and $E_o$ offset, option to view as point-to-point graph |
| Isopotential point | 7.000, user adjustable |
| Input impedance | $>10^{12}$ Ω |
| **mV** | |
| Range | –2000.0 to 2000.0 mV |
| Resolution | 0.1 mV |
| Relative accuracy | ±0.2 mV or ±0.05% of the reading, whichever is greater |
| **Relative mV / ORP** | |
| Range | –2000.0 to 2000.0 mV |
| Resolution | 0.1 mV |
| Relative accuracy | ±0.2 mV or ±0.05% of the reading, whichever is greater |
| Calibration points | 1 point |
| Calibration method | ORP or $E_H$ |
| Calibration offset | ±250 mV |

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| Temperature | |
|---|---|
| Range | –30.0 to 130.0°C, –22.0 to 266.0°F |
| Resolution | 0.1°C, 0.1 °F |
| Relative accuracy | ±0.3°C, ±0.5°F |
| Calibration points | 1 or 2 points |
| Offset adjustment | Up to ±5.0°C |
| Temperature source | Automatic with ATC sensor, ambient with built-in meter temperature sensor or manual entry |
| **Measurement functions** | |
| Measurement channels | 1 |
| Measurement parameters | pH, mV or ORP with temperature |
| Timed reading intervals | 3 seconds to 2 hours |
| Measurement layout | Customizable options for basic, advanced or user-defined |
| Measurement stability | Automatic, fast, medium or slow |
| Sample ID | Auto-incremental or manual, up to 25 alphanumeric characters |
| Electrode ID | Up to 20 alphanumeric characters |
| Graph/chart view | Single parameter with temperature |
| Set value alarm | 1 high and 1 low value per parameter |
| Last calibration details | Calibration summary with date and time |
| **Meter features** | |
| Display | 7-inch, high-resolution color graphic LCD |
| Touchscreen type | Capacitive with lab glove compatibility |
| Onscreen prompts | On-demand information screens; onscreen user guide and step-by-step calibration guidance |
| Time and date | Yes |
| Time format | 12 or 24 hour |
| Date format | Selectable as MM-DD-YYYY, DD-MM-YYYY or DD-MMM-YYYY |

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| | |
|---|---|
| Instrument name | Up to 20 alphanumeric characters |
| Secure mode | 3 administrator and 30 user accounts with individual password protection, custom user access permissions and audit trail |
| Username | Up to 20 alphanumeric characters |
| Methods | 10 |
| Data outputs | USB flash drive, computer or compact ink printer |
| Data output format | Report, CSV or print |
| Data log | 10,000 data sets with time and date |
| Data log export | Customizable options for basic (short), intermediate, advanced or all data |
| Calibration log | 20 per parameter with time and date |
| Calibration log export | Customizable options for basic (short), intermediate, advanced or all data |
| Calibration reminder | 1 alarm per parameter |
| Calibration alarm interval | 1 hour to 30 days or off |
| Audible signal | User set for notifications and alarms, stable reading |
| Maintenance reminder | Up to 5 electrode maintenance reminders and up to 5 solution maintenance reminders |
| Sleep mode | Selectable time interval of 5, 10, 20, 30, 60 minutes or off |
| Meter tests | Self-test, stability test and pH electrode check |
| Meter tours and guides | Calibration modes, measurement mode, meter connections, electrode stand assembly and pH electrode maintenance |

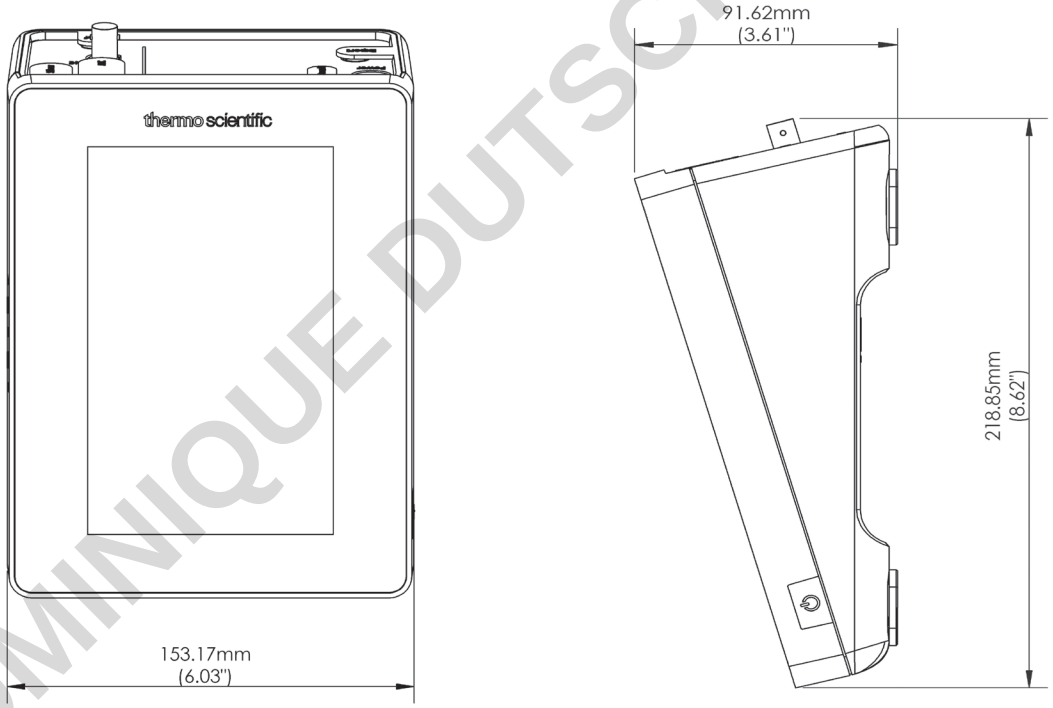
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|---|---|
| Stirrer probe inputs | 1 |
| Stirrer probe speeds | 5 selectable speeds: from 250 RPM to 3600 RPM |
| Electrode inputs | BNC, 8-pin MiniDIN (ATC), reference pin-tip |
| Data outputs | 1 USB-A port for USB flash drive; 1 export port for computer or compact ink printer |
| Accessory input | 1 USB-A port for USB mouse, USB keyboard or USB barcode scanner |
| Memory | Non-volatile, to preserve data and settings in case of power loss |
| Display languages | Chinese, English, French, German, Italian, Japanese, Korean, Portuguese or Spanish |
| Meter warranty | 2 years |
| Certifications | CE, TUV 3-1, FCC Class A |
| Enclosure | IP-54 |
| Power | 100-240 VAC, 50-60Hz, 9 DC adapter, 2.0A |
| Dimensions (L x W x H) | 218.9 x 153.2 x 91.62 mm, 8.62 x 6.03 x 3.61 in. |
| Weight | 1.00 kg, 2.20 lbs. |

Specifications subject to change without notice. All relative accuracy values are influenced by the displayed least significant digit and should include ±1 LSD for all relative accuracy calculations.

## Meter dimensions




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## Ordering information

| Description | Cat. No. |
|---|---|
| Orion Pro Star PH211 pH/ORP bench meter with electrode stand, includes USB flash drive, computer cable, 100-240V 50/60Hz universal power adapter (purchase electrodes separately) | PSTAR2110 |
| Orion Pro Star PH211 pH/ORP bench meter difficult sample kit; includes meter with stand (PSTAR2110); ROSS Sure-Flow refillable glass-body pH electrode (8172BNWP); stainless steel ATC temperature probe (927007MD); meter-controlled stirrer probe (096019-WA); pH 4, 7, 10 buffers and rinse solution pouches; pH electrode storage solution and cleaning solution; pH electrode storage sleeve and base | PSTAR2114 |
| Orion Pro Star PH211 pH/ORP bench meter standard kit; includes meter with stand (PSTAR2110); ROSS Ultra Triode refillable glass-body pH/ATC electrode (8302BNUMD); pH 4, 7, 10 buffers and rinse solution pouches; pH electrode storage solution and cleaning solution; pH electrode storage sleeve and base | PSTAR2115 |
| Orion Pro Star PH211 pH/ORP bench meter durable kit; includes meter with stand (PSTAR2110); ROSS Ultra Triode refillable epoxy-body pH/ATC electrode (8157BNUMD); pH 4, 7, 10 buffers and rinse solution pouches; pH electrode storage solution and cleaning solution; pH electrode storage sleeve and base | PSTAR2116 |
| Orion Pro Star PH211 pH/ORP bench meter low maintenance kit; includes meter with stand (PSTAR2110); ROSS Ultra Triode gel-filled epoxy-body pH/ATC electrode (8107BNUMD); pH 4, 7, 10 buffers and rinse solution pouches; pH electrode storage solution and cleaning solution; pH electrode storage sleeve and base | PSTAR2117 |
| Orion Pro Star PH211 pH/ORP bench meter micro kit; includes meter with stand (PSTAR2110); ROSS Micro refillable glass-body pH electrode (8220BNWP); micro stainless steel ATC temperature probe (928007MD); pH 4, 7, 10 buffers and rinse solution pouches; pH electrode storage solution and cleaning solution | PSTAR2118 |
| Orion Pro Star PH211 pH/ORP bench meter ORP kit, includes meter with stand (PSTAR2110), refillable epoxy-body ORP/ATC electrode (9180BNMD), ORP standard, electrode storage solution and cleaning solution | PSTAR2119 |
| Orion bench meter stirrer probe | 096019-WA |
| Orion compact ink printer, includes meter cable, paper, ink ribbon, 100-240V 50/60Hz power adapter | STARA-106 |
| Orion Pro Star series USB flash drive | PSTAR-UFD |
| Orion Pro Star series USB mouse | PSTAR-UMS |
| Orion Pro Star series USB keyboard | PSTAR-UKB |
| Orion Pro Star series USB barcode scanner | PSTAR-UBS |
| Orion Pro Star series electrode stand with base | PSTAR-ARM |
| Orion Pro Star series universal power supply, 100-240V, 50/60 Hz | PSTAR-PWR |
| Orion Pro Star series USB computer cable | PSTAR-USB |
| Orion Pro Star series standard protective display cover | PSTAR-PCS |
| Orion Pro Star series rugged protective display cover | PSTAR-PCR |

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Learn more at **thermofisher.com/prostarph211**

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