



# Thermo Scientific Orion Benchtop and Portable Meters

The measure of confidence – in the lab and in the field

# Thermo Scientific Orion Meters

## The Measure of Confidence

High-quality meters are essential to the critical, routine tasks you perform every day.

Our portfolio of benchtop and portable meters are designed to help you meet your sample analysis challenges across a wide array of industries and applications.

We offer simple, complete systems that are seamlessly integrated to help address your measurement needs.

Our extensive portfolio of Thermo Scientific™ Orion™ benchtop and portable meters are designed to deliver the features and functionality you look for in a lab or field instrument:

- Accurate, consistent results – day after day
- Easy-to-use features that maximize productivity and minimize training time
- A wide selection of benchtop and portable meters meet your application requirements and budget
- Durable construction for long product life
- Modular meter designs for maximum configuration flexibility and functional expandability to help address your evolving requirements
- Integration with our line of Thermo Scientific™ ROSS™ electrodes - offering a complete solution with total confidence



For more than 50 years, we have been a driving innovator and global leader in liquid sensing technology designed to make complex measurements routine, reliable, and accurate – in the lab, online and in the field.

**PH | ORP | ION (ISE) | CONDUCTIVITY | TDS | SALINITY  
RESISTIVITY | DISSOLVED OXYGEN | TEMPERATURE**





Perfectly designed to work together

Thermo Scientific Orion Benchtop Meters	5
Thermo Scientific Orion Portable Meters	14
Benchtop and Portable Meter Accessories	22

# Choosing the best Thermo Scientific meter for your needs

1. Select a **benchtop meter** for lab analysis or a **portable meter** for onsite measurements in the field.
2. Learn about our **premium, advanced** and **basic** meters and identify the best match based on your required features, performance specifications and budget. Benchtop Meter Selection Guide Page 5 | Portable Meter Selection Guide Page 14
3. From **single parameter pH meters** to **multiparameter meters** capable of measuring pH, ISE, conductivity and dissolved oxygen simultaneously – discover the meter that helps address your measurement requirements.
4. Take a look at our **featured meter kits**, which provide what you need to start taking readings, protect your system and simplify sample analysis.
5. Complete your system with **seamlessly integrated accessories** for benchtop and portable meters.
6. Unique sample testing requires specialized sensors. Visit [thermofisher.com/water](http://thermofisher.com/water) for a complete line of pH, ORP, ion selective, conductivity, dissolved oxygen and temperature sensors. While there, try our digital pH electrode selection tool!

Don't forget to add sensors for specialized sample testing.



# Benchtop Meters Selection Guide

Ensure accurate and reliable measurements in your laboratory and research locations.

Our Thermo Scientific™ Orion™ Versa Star™ Pro and Thermo Scientific™ Orion Star™ A series benchtop meters are designed to address a variety of measurement requirements for dependable performance. Identify the best match based on your required features, performance specifications and budget.

Orion Versa Star Pro Series



Orion Star A210 Series



Orion Star A110 Series



## Orion VersaStar Pro and Orion Star A Series Benchtop Meters

	Orion Versa Star Pro Series Premium Benchtop Meters	Orion Star A210 Series Advanced Benchtop Meters	Orion Star A110 Series Basic Benchtop Meters
<b>Features</b>			
Display Type	Adjustable color graphic LCD	Graphic LCD with backlight	Fixed segment LCD
Onscreen Text Prompts	Step-by-step calibration and guided setup instructions	Step-by-step calibration and guided setup instructions	Basic calibration and setup prompts
Keypad	Numeric with menu-specific function keys	Comprehensive with menu-specific function keys	Simple with highlighted measure key
Number of Channels	4, customizable with modules	1 to 2	1
Stirrer Probe Inputs	2	1	–
Measurement Read Modes	Auto-Read, Timed, Single-shot, Continuous	Auto-Read, Timed, Continuous	Auto-Read, Continuous
Methods	10 per channel	10 per channel	–
Data Log	2000 with date/time	2000 with date/time	50
Calibration Log	10 per mode	10	1
Identification Options	Electrode ID, Sample ID, User ID	Sample ID, User ID	–
Alarms	Set Point, High/Low Limit, Calibration Due	High/Low Limit, Calibration Due	–
External Device Output	USB (2), RS232	USB, RS232	–
Computer Software	Yes	Yes	–
Certifications	IP-54, CE, TUV 3-in-1, FCC, Class A	IP-54, CE, TUV 3-in-1, FCC Class A	IP-54, CE, TUV 3-in-1, FCC Class A
Power Supply	Universal, 90-260 VAC, 50-60 Hz	Universal, 90-260 VAC, 50-60 Hz or 4 AA batteries	Universal, 90-260 VAC, 50-60 Hz or 4 AA batteries
<b>Measurement Parameters</b>			
pH	Versa Star Pro meter with pH or pH/LogR module	Star A211 pH meter	Star A111 pH meter
pH/Ion	Versa Star Pro meter with one or two pH/ISE modules	Star A214 pH/ISE meter or Dual Star pH/ISE meter	–
Conductivity	Versa Star Pro meter with conductivity module	Star A212 conductivity meter	Star A112 conductivity meter
Dissolved Oxygen	Versa Star Pro meter with optical/polarographic DO module	Star A213 optical/polarographic DO meter	Star A113 polarographic DO meter
pH & Conductivity	Versa Star Pro meter with pH & conductivity modules	Star A215 pH & conductivity meter	–
pH & Dissolved Oxygen	–	Star A216 pH & DO meter	–
pH, Ion, Conductivity & Dissolved Oxygen	Versa Star Pro meter with pH/ISE, conductivity & DO modules	–	–
Expandable Measurement Modules	Select up to four modules per meter to customize parameters	–	–



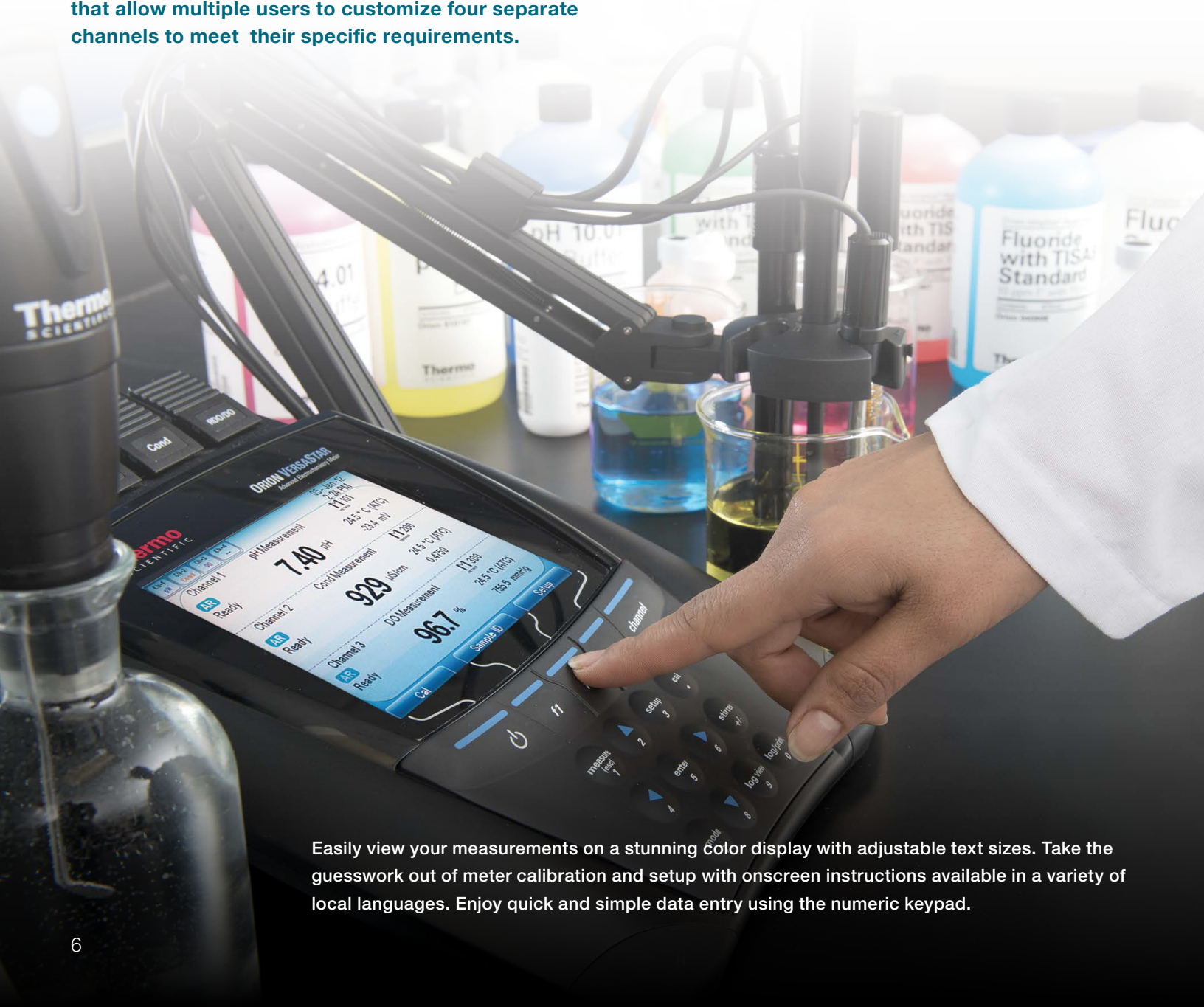
# Thermo Scientific Orion Versa Star Pro

Premium Benchtop Meters - versatile, high-performance laboratory measurement system

Thermo Scientific Orion Versa Star Pro benchtop benchtop meters are designed to meet your most challenging application with ease. Delivering rich functionality and features, you can optimally configure your meter system to meet changing requirements. The Orion Versa Star Pro benchtop meters offer interchangeable measurement modules that allow multiple users to customize four separate channels to meet their specific requirements.

Ideal for Applications in:

- Pharmaceuticals
- Biotechnology
- Food and Beverage
- Industry



Easily view your measurements on a stunning color display with adjustable text sizes. Take the guesswork out of meter calibration and setup with onscreen instructions available in a variety of local languages. Enjoy quick and simple data entry using the numeric keypad.

# Versa Star Pro

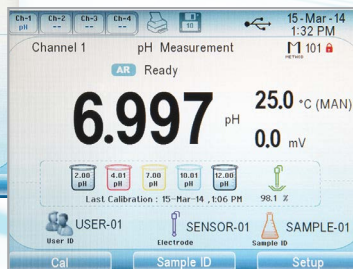
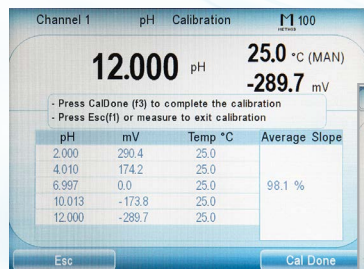
## Premium Benchtop Meters

### Collect, store, and export your critical data:

- Data log collects up to 2000 data points with time and date stamp; enhance data tracking using electrode ID, sample ID and user ID options
- Calibration log stores 30 most recent calibrations per parameter with viewable graph for multipoint pH and ISE calibrations
- Ensure measurement integrity by viewing the active calibration log while taking readings
- Non-volatile memory preserves data and settings, even in the event of power loss
- Purchase Thermo Scientific™ Orion™ Navigator Pro™ computer software for computer control of meter functions and electronic records generation

### Collect, store, and export your critical data:

- System access feature for administrator and up to 10 user accounts with custom access levels to meter functions including data/time, setup, data and calibration
- Onscreen measurement stability indicator lets you know exactly when your measurements are ready and is adjustable using custom stability and averaging settings
- Audible alarms automatically notify you when a set offset value, high/low limit value, and calibration time interval
- Uniformly mix solutions using meter-controlled stirrer probes that are easy to position and can be quickly rinsed between samples are reached



### Measurement Modules

Select the measurement modules you need to best fit your application requirements.

The Versa Star Pro meter is available without modules (VSTAR00), providing maximum flexibility for your meter configuration.

### Versa Star and Versa Star Pro Meters

Module Function	Cat. No.
Versa Star pH Module measures pH, mV, relative mV, ORP and temperature	VSTAR-PH
Versa Star pH/LogR Module measures pH, mV, relative mV, ORP and LogR temperature	VSTAR-LR
Versa Star pH/ISE Module measures pH, ion concentration (ISE), mV, relative mV, ORP and temperature	VSTAR-ISE
Versa Star Conductivity Module measures conductivity, TDS, salinity, resistivity and temperature	VSTAR-CND
Versa Star DO Module measures dissolved oxygen using an optical or polarographic DO probe and temperature	VSTAR-RD
Versa Star Pro Meter Without Modules includes electrode stand, universal power adapter and computer interface cable	VSTAR00



# Thermo Scientific Orion Versa Star Pro

## Premium Benchtop Meters - versatile, high-performance laboratory measurement system

### Versa Star Pro 10 pH Meter

Measure pH, mV, relative mV or ORP with temperature and perform up to a six point pH calibration with easy to follow onscreen instructions, automatic buffer recognition of NIST, DIN or user-defined buffer groups and calibration editing option to fix individual points without a full recalibration. Customize measurements to show calibration history and pH electrode condition or simplify to show an extra large pH reading.

### Versa Star Pro 80 pH/LogR Meter

Includes all the benefits of the Versa Star Pro pH meter plus LogR technology that uses the glass-bulb of most pH electrodes to measure both pH and temperature at the same location – ideal for small sample volumes and samples that are difficult to clean.

### Versa Star Pro 40 pH/ISE Meters

Includes all the benefits of the Versa Star Pro pH meter plus measure ion concentration (ISE) and perform up to a six point ISE calibration with fast entry of concentration values using the numeric keypad. Use advanced ISE features including single and double known addition & subtraction and analate addition and subtraction incremental techniques, non-linear auto-blank, low range stability and electrode ID with calibration verification. Select the VSTAR40B2 kit with two pH/ISE modules to measure multiple samples simultaneously.

### Versa Star Pro 20 Conductivity Meter

Measure conductivity, TDS, salinity or resistivity with temperature and perform up to a six point calibration with onscreen instructions and calibration editing option. Auto-ranging conductivity values with linear, non-linear, EP (USP) or off temperature compensation settings and 5, 10, 15, 20 or 25°C reference temperatures ensure accurate results.

### Versa Star Pro 30 Dissolved Oxygen Meter

Measure dissolved oxygen in percent saturation or mg/L with temperature and flexibility using Orion polarographic or optical DO sensors with automatic sensor recognition. Calibrate using water-saturated air, air-saturated water, custom value (Winkler) and zero point options. A built-in barometer automatically adjusts DO readings for barometric pressure.

### Versa Star Pro 50 pH and Conductivity Meter

Includes all the benefits of the Versa Star pH and conductivity meters in one preconfigured system.

### Versa Star Pro 90 pH/ISE, Conductivity and DO Meters

Includes all the benefits of the Versa Star pH/ISE, conductivity and DO meters in one preconfigured system. Select the VSTAR93 kit with two pH/ISE modules to measure up to four samples simultaneously.





# Versa Star Pro Premium Benchtop Meters

## Versa Star Pro Premium Benchtop Meters

Cat. No.	Description*	Included Electrode/Sensor Advantages
VSTAR12	<b>Versa Star Pro Meter with pH Module Kit</b> <ul style="list-style-type: none"> <li>8302BNUMD ROSS Ultra Triode pH/ATC electrode</li> <li>096019 Orion Star stirrer probe</li> <li>810199 ROSS pH buffer and solution kit</li> </ul>	<b>8302BNUMD ROSS Ultra pH/ATC electrode</b> <ul style="list-style-type: none"> <li>Simultaneously measure pH and temperature with one electrode</li> <li>Robust glass body for chemical resistance in a variety of samples</li> <li>TRIS buffer, sulfide and protein compatible with 2-year warranty**</li> </ul>
VSTAR82	<b>Versa Star Pro Meter with pH/LogR Module Kit</b> <ul style="list-style-type: none"> <li>8172BNWP ROSS Sure-Flow pH electrode</li> <li>927007MD Stainless steel ATC probe</li> <li>810199 ROSS pH buffer and solution kit</li> <li>810007 ROSS electrode fill solution</li> </ul>	<b>8172BNWP ROSS Sure-Flow pH electrode</b> <ul style="list-style-type: none"> <li>Open reference junction stabilizes readings and prevents clogging in difficult, dirty, viscous or semi-solid samples</li> <li>Easy-to-flush reference chamber simplifies electrode maintenance</li> <li>Double junction for TRIS buffer, sulfide and protein compatibility</li> </ul>
VSTAR40A2	<b>Versa Star Pro Meter with pH/ISE Module Kit</b> <ul style="list-style-type: none"> <li>8302BNUMD ROSS Ultra Triode pH/ATC electrode</li> <li>927007MD Stainless steel ATC probe</li> <li>810199 ROSS pH buffer and solution kit</li> <li>810007 ROSS electrode fill solution</li> </ul>	<b>8102BNUWP ROSS Ultra pH electrode</b> <ul style="list-style-type: none"> <li>Designed to provide accurate, stable measurements in a wide range of samples and applications</li> <li>Robust glass body for chemical resistance in a variety of samples</li> <li>Double junction for TRIS buffer, sulfide and protein compatibility</li> </ul>
VSTAR40B2	<b>Versa Star Pro Meter with Two pH/ISE Modules Kit</b> <ul style="list-style-type: none"> <li>Same kit contents as VSTAR40A2 plus second pH/ISE module and stand for additional pH or ion selective electrode</li> </ul>	<ul style="list-style-type: none"> <li>Industry-leading 2-year warranty**</li> </ul>
VSTAR22	<b>Versa Star Pro Meter with Conductivity Module Kit</b> <ul style="list-style-type: none"> <li>013005MD Orion 4-cell conductivity sensor</li> <li>011007 Orion 1413 <math>\mu</math>S conductivity standard</li> </ul>	<b>013005MD conductivity sensor</b> <ul style="list-style-type: none"> <li>Designed to provide high accuracy across 1 <math>\mu</math>S/cm to 200 mS/cm</li> <li>Rugged epoxy/graphite body with built-in temperature sensor</li> <li>4-cell designed to reduce fringe field and polarization errors</li> </ul>
VSTAR32	<b>Versa Star Pro Meter with DO Module Kit</b> <ul style="list-style-type: none"> <li>083005MD Orion polarographic DO sensor</li> <li>080513 DO probe maintenance kit</li> <li>BOD adapter, funnel and stirrer</li> </ul>	<b>083005MD polarographic DO sensor</b> <ul style="list-style-type: none"> <li>Designed to deliver precise DO readings across 0 to 90 mg/L</li> <li>Durable epoxy body with built-in temperature sensor</li> <li>Screw-on membrane caps for quick and easy maintenance</li> </ul>
VSTAR52	<b>Versa Star Pro Meter with pH and Conductivity Module Kit</b> <ul style="list-style-type: none"> <li>8157BNUMD ROSS Ultra Triode pH/ATC electrode</li> <li>013005MD Orion 4-cell conductivity sensor</li> <li>810199 ROSS pH buffer and solution kit</li> <li>011007 Orion 1413 <math>\mu</math>S conductivity standard</li> </ul>	<b>8157BNUMD ROSS Ultra pH/ATC electrode</b> <ul style="list-style-type: none"> <li>Simultaneously measure pH and temperature with one electrode and double junction for TRIS buffer, sulfide and protein compatibility</li> <li>Durable, break resistant epoxy body, plus 2-year warranty**</li> </ul> <b>013005MD conductivity sensor</b> <ul style="list-style-type: none"> <li>Designed to provide high accuracy across 1 <math>\mu</math>S/cm to 200 mS/cm</li> <li>Rugged epoxy/graphite body with built-in temperature sensor</li> </ul>
VSTAR92	<b>Versa Star Pro Meter with pH/ISE, Conductivity and DO Modules Kit</b> <ul style="list-style-type: none"> <li>8157BNUMD ROSS Ultra Triode pH/ATC electrode</li> <li>013005MD Orion 4-cell conductivity sensor</li> <li>083005MD Orion polarographic DO sensor</li> <li>096019 Orion Star stirrer probe</li> <li>810199 ROSS pH buffer and solution kit</li> <li>011007 Orion 1413 <math>\mu</math>S conductivity standard</li> <li>080513 DO probe maintenance kit</li> <li>BOD adapter, funnel and stirrer</li> </ul>	<b>8157BNUMD ROSS Ultra pH/ATC electrode</b> <ul style="list-style-type: none"> <li>Simultaneously measure pH and temperature with one electrode and double junction for TRIS buffer, sulfide and protein compatibility</li> <li>Durable, break resistant epoxy body, plus 2-year warranty**</li> </ul> <b>013005MD conductivity sensor</b> <ul style="list-style-type: none"> <li>Designed to provide high accuracy across 1 <math>\mu</math>S/cm to 200 mS/cm</li> <li>Rugged epoxy/graphite body with built-in temperature sensor</li> </ul> <b>083005MD polarographic DO sensor</b> <ul style="list-style-type: none"> <li>Designed to deliver precise DO readings across 0 to 90 mg/L</li> <li>Durable epoxy body with built-in temperature sensor</li> <li>Screw-on membrane caps for quick and easy maintenance</li> </ul>
VSTAR93	<b>Versa Star Pro Meter with two pH/ISE, Conductivity and DO Modules Kit</b> <ul style="list-style-type: none"> <li>Same kit contents as VSTAR92 plus second pH/ISE module for additional pH or ion selective electrode</li> </ul>	

\* Note: Each meter kit includes meter-attached electrode stand, universal power adapter and computer interface cable.

\*\* Subject to terms of standard limited warranty.

# Thermo Scientific Orion A210 and Dual Star Series

## Advanced Benchtop Meters - easy-to-use, dependable laboratory meters

Perform your routine lab measurements quickly and easily with the Thermo Scientific Orion Star A210 series benchtop meters. Selectable read modes, hold function and measurement stability indicator give you flexibility and control over your testing. All critical data is shown with your measurements including temperature, date and time, read type, measurement stability, active calibration info, and power source. Onscreen calibration and setup instructions can be displayed in several local languages and new languages added through software updates.

Navigation is fast and simple due to the comprehensive keypad with menu-specific function keys, dual purpose scroll/shortcut keys, plus power, measure, log view and stirrer keys that ensure easy operation. All setup menus are in one location with direct access using a single shortcut key so you can quickly access, evaluate and change measurement and instrument settings.

### Advanced ease-of-use features:

- Informative, easy-to-read backlit graphic display provides clear onscreen instructions for calibration and setup
- Includes measurement stability indicator and selectable read modes – Auto-Read holds a stable reading, Continuous shows changing readings with hold option, and Timed logs data at specific intervals
- Eliminate the need for magnetic stir bars using a meter-controlled stirrer probe to uniformly mix solutions

### Dependable data collection, storage and exporting:

- Data log reliably collects and date/time-stamps up to 2000 measurement sets with optional sample ID and user ID
- Calibration log stores ten most recent calibrations
- Non-volatile meter memory ensures your data and settings are protected, even with loss of power
- Free Orion Star Com software enables data transfer to a computer via USB or RS232 connections

### Ideal for Applications in:

- Water
- Wastewater
- Chemical
- Contract testing



# Thermo Scientific Orion Star A210

## Advanced Benchtop Meters

### Star A211 pH Meter

Measure pH, mV, relative mV or ORP with temperature and perform up to a five point pH calibration with easy to follow onscreen instructions and automatic buffer recognition of NIST or DIN buffer groups with choice to manually enter custom buffer values. Calibration editing option allows individual points to be fixed without a full recalibration.

### Star A214 pH/ISE Meter

Measure pH, mV, relative mV, ORP or ion concentration (ISE) with temperature and perform up to a five point pH or ISE calibration with easy to follow onscreen instructions and calibration editing option. Advanced ISE features include non-linear auto-blank and low-range stability.

### Dual Star pH/ISE Meter

Measure pH, mV, relative mV, ORP or ion concentration (ISE) with temperature simultaneously on two channels. Perform up to a six point pH or ISE calibration on each channel with the numeric keypad or utilize incremental techniques for single & double known addition and subtraction.

### Star A212 Conductivity Meter

Measure conductivity, TDS, salinity or resistivity with temperature and perform up to a five point calibration with onscreen instructions and calibration editing option. Ensure accuracy using linear, non-linear, EP (USP) or off temperature compensation settings with 5, 10, 15, 20 or 25°C reference temperatures and auto-ranging conductivity values.

### Star A213 Dissolved Oxygen Meter

Measure dissolved oxygen in percent saturation or mg/L with temperature using an Orion polarographic or optical DO sensor and built-in barometer for pressure compensated DO readings. Calibrate using water-saturated air, air-saturated water, custom value (Winkler) and zero point options.

### Star A215 pH/Conductivity Meter

Includes the benefits of the Star A210 series pH and conductivity meters in one convenient system. Easily view individual measurements on a full screen display and quickly toggle to a split screen display to view multiple measurements simultaneously.

### Star A216 pH/DO Meter

Includes the benefits of the Star A210 series pH and DO meters in one convenient system. Easily view individual measurements on a full screen display and quickly toggle to a split screen display to view multiple measurements simultaneously.

Orion Star Com software makes it easy to transfer data from your meter to a computer.





# Orion Star A210: Advanced Benchtop Meters

## Orion Star A210 Advanced Benchtop Meters

Cat. No.	Description*	Included Electrode/Sensor Advantages
STARA2115	<b>Star A211 pH Meter Kit</b> <ul style="list-style-type: none"> <li>8302BNUMD ROSS Ultra Triode pH/ATC electrode</li> <li>810199 ROSS pH buffer and solution kit</li> </ul>	<b>8302BNUMD ROSS Ultra pH/ATC electrode</b> <ul style="list-style-type: none"> <li>Simultaneously measure pH and temperature with one electrode</li> <li>Robust glass body for chemical resistance in a variety of samples</li> <li>TRIS buffer, sulfide and protein compatible with 2-year warranty**</li> </ul>
STARA2145	<b>Star A214 pH/ISE Meter Kit</b> <ul style="list-style-type: none"> <li>8102BNUWP ROSS Ultra pH electrode</li> <li>927007MD Stainless steel ATC probe</li> <li>096019 Orion Star stirrer probe</li> <li>810199 ROSS pH buffer and solution kit</li> </ul>	<b>8102BNUWP ROSS Ultra pH electrode</b> <ul style="list-style-type: none"> <li>Designed to provide accurate, stable measurements in a wide range of samples</li> <li>Robust glass body for chemical resistance in a variety of samples</li> <li>TRIS buffer, sulfide and protein compatible with 2-year warranty**</li> </ul>
2115001	<b>Dual Star pH/ISE Meter Kit</b> <ul style="list-style-type: none"> <li>8102BNUWP ROSS Ultra pH electrode</li> <li>927007MD Stainless steel ATC probe</li> <li>096019 Orion Star stirrer probe</li> <li>pH 4, 7, 10 buffers and ROSS storage solution</li> </ul>	<b>8102BNUWP ROSS Ultra pH electrode</b> <ul style="list-style-type: none"> <li>Designed to provide accurate, stable measurements in a wide range of samples</li> <li>Robust glass body for chemical resistance in a variety of samples</li> <li>TRIS buffer, sulfide and protein compatible with 2-year warranty**</li> </ul>
STARA2125	<b>Star A212 Conductivity Meter Kit</b> <ul style="list-style-type: none"> <li>013005MD Orion 4-cell conductivity sensor</li> <li>011007 Orion 1413 <math>\mu\text{S}</math> conductivity standard</li> </ul>	<b>013005MD conductivity sensor</b> <ul style="list-style-type: none"> <li>Designed to provide high accuracy across 1 <math>\mu\text{S}/\text{cm}</math> to 200 <math>\text{mS}/\text{cm}</math></li> <li>Rugged epoxy/graphite body with built-in temperature sensor</li> <li>4-cell designed to reduce fringe field and polarization errors</li> </ul>
STARA2135	<b>Star A213 DO Meter Kit</b> <ul style="list-style-type: none"> <li>083005MD Orion polarographic DO sensor</li> <li>080513 DO probe maintenance kit</li> <li>BOD adapter, funnel and stirrer</li> </ul>	<b>083005MD polarographic DO sensor</b> <ul style="list-style-type: none"> <li>Designed to deliver precise DO readings across 0 to 90 <math>\text{mg}/\text{L}</math></li> <li>Durable epoxy body with built-in temperature sensor</li> <li>Screw-on membrane caps for quick and easy maintenance</li> </ul>
STARA2155	<b>Star A215 pH and Conductivity Meter Kit</b> <ul style="list-style-type: none"> <li>8157BNUMD ROSS Ultra Triode pH/ATC electrode</li> <li>013005MD Orion 4-cell conductivity sensor</li> <li>810199 ROSS pH buffer and solution kit</li> <li>011007 Orion 1413 <math>\mu\text{S}</math> conductivity standard</li> </ul>	<b>8157BNUMD ROSS Ultra pH/ATC electrode</b> <ul style="list-style-type: none"> <li>Simultaneously measure pH and temperature with one electrode and double junction for TRIS buffer, sulfide and protein compatibility</li> <li>Durable, break resistant epoxy body, plus 2-year warranty**</li> </ul> <b>013005MD conductivity sensor</b> <ul style="list-style-type: none"> <li>Designed to provide high accuracy across 1 <math>\mu\text{S}/\text{cm}</math> to 200 <math>\text{mS}/\text{cm}</math></li> <li>Rugged epoxy/graphite body with built-in temperature sensor</li> </ul>
STARA2165	<b>Star A216 pH/DO Meter Kit</b> <ul style="list-style-type: none"> <li>8157BNUMD ROSS Ultra Triode pH/ATC electrode</li> <li>083005MD Orion polarographic DO sensor</li> <li>810199 ROSS pH buffer and solution kit</li> <li>080513 DO probe maintenance kit</li> <li>BOD adapter, funnel and stirrer</li> </ul>	<b>8157BNUMD ROSS Ultra pH/ATC electrode</b> <ul style="list-style-type: none"> <li>Simultaneously measure pH and temperature with one electrode and double junction for TRIS buffer, sulfide and protein compatibility</li> <li>Durable, break resistant epoxy body, plus 2-year warranty**</li> </ul> <b>083005MD polarographic DO sensor</b> <ul style="list-style-type: none"> <li>Designed to deliver precise DO readings across 0 to 90 <math>\text{mg}/\text{L}</math></li> <li>Durable epoxy body with built-in temperature sensor</li> <li>Screw-on membrane caps for quick and easy maintenance</li> </ul>

\* Note: Each meter kit includes meter-attached electrode stand, universal power adapter and computer interface cable.

\*\* Subject to terms of standard limited warranty.



Orion meters and Orion ROSS electrodes:  
The ideal combination for outstanding results.

# Thermo Scientific Orion A110 Series Basic Benchtop Meters

## Economical, simplified laboratory meters

Looking for a budget-friendly basic benchtop meter that doesn't compromise on reliability and quality? Our Thermo Scientific Orion Star A110 series meters are a simple, economical solution for your basic routine measurements.

Featuring an emphasized measure key, selectable read modes and measurement stability indicator, our basic meter series is designed to deliver measurements you can trust.

- Simplified, easy-to-read display
- User-friendly operation with basic calibration text prompts
- Power using batteries, or included power adapter



### Star A111 pH Meter

Measure pH, mV or relative mV with temperature. Perform up to a three point pH calibration with automatic buffer recognition of NIST or DIN buffer groups or manual buffer entry.

### Star A112 Conductivity Meter

Measure conductivity or TDS with temperature with auto-ranging conductivity values, linear temperature compensation, 20 or 25 °C reference temperatures and one point automatic or manual conductivity calibration.

### Star A113 DO Meter

Measure dissolved oxygen in percentsaturation or mg/L with temperature and calibrate using water-saturated air or custom value using a Winkler titration.

### Ideal for Applications in:

- Academics
- Environmental
- Power

### Orion Star A110 Basic Benchtop Meters

Cat. No.	Description*	Included Electrode/Sensor Advantages
STARA1115	<b>Star A111 pH Meter Kit</b> <ul style="list-style-type: none"> <li>• 9157BNMD Orion Triode pH/ATC electrode</li> <li>• 916099 Orion 60 mL pH buffer kit</li> </ul>	<b>9157BNMD Orion Triode pH/ATC electrode</b> <ul style="list-style-type: none"> <li>• Simultaneously measure pH and temperature with one electrode</li> <li>• Durable epoxy body for break resistant operation</li> </ul>
STARA1125	<b>Star A112 Conductivity Meter Kit</b> <ul style="list-style-type: none"> <li>• 011050MD Orion 2-cell conductivity sensor</li> <li>• 011007 Orion 1413 <math>\mu</math>S conductivity standard</li> </ul>	<b>011050MD conductivity sensor</b> <ul style="list-style-type: none"> <li>• Designed to provide high accuracy across 1 <math>\mu</math>S/cm to 20 mS/cm</li> <li>• Durable epoxy/platinum body with built-in temperature sensor</li> </ul>
STARA1135	<b>Star A113 DO Meter Kit</b> <ul style="list-style-type: none"> <li>• 083005MD Orion polarographic DO sensor</li> <li>• 080513 DO probe maintenance kit</li> </ul>	<b>083005MD polarographic DO sensor</b> <ul style="list-style-type: none"> <li>• Designed to provide precise DO readings across 0 to 20 mg/L</li> <li>• Durable epoxy body and screw-on membrane caps for quick and easy maintenance</li> </ul>

\* Note: Each meter kit includes meter-attached electrode stand, universal power adapter.

# Portable Meters Selection Guide

Take your measurements into the great outdoors.

Our Thermo Scientific Orion Star A series portable meters are built rugged and waterproof for dependable performance. Take advantage of one-hand operation and easy portability for any remote application without sacrificing the accuracy and reliability of your measurements. Identify the best match based on your required features, performance specifications and budget.

Orion Star A320 Series



Orion Star A220 Series



Orion Star A120 Series



## Orion Star A Series Portable Meters

	Orion Star A320 Series Premium Portable Meters	Orion Star A220 Series Advanced Portable Meters	Orion Star A120 Series Basic Portable Meters
<b>Features</b>			
Display Type	Graphic LCD with backlight	Graphic LCD with backlight	Fixed segment LCD
Onscreen Text Prompts	Step-by-step calibration and guided setup instructions	Step-by-step calibration and guided setup instructions	Basic calibration and setup prompts
Keypad	Comprehensive with menu-specific function keys	Comprehensive with menu-specific function keys	Simple with highlighted measure key
Number of Channels	1 to 3	1	1
Measurement Read Modes	Auto-Read, Timed, Continuous	Auto-Read, Continuous	Auto-Read, Continuous
Methods	10 per channel	–	–
Data Log	5000 with date/time	1000 with date/time	50
Calibration Log	10 per channel	10	1
Identification Options	Sample ID, User ID	–	–
Alarms	High/Low Limit, Calibration Due	Calibration Due	–
External Device Output	USB, RS232	USB, RS232	–
Computer Software	Yes	Yes	–
Enclosure Rating	IP67 waterproof	IP67 waterproof	IP67 waterproof
Certifications	CE, TUV 3-in-1, FCC Class A	ICE, TUV 3-in-1, FCC Class A	CE, TUV 3-in-1, FCC Class A
Power Supply	Four AA batteries or universal 90-260 VAC, 50-60 Hz wall adapter	Four AA batteries or universal 90-260 VAC, 50-60 Hz wall adapter	Four AA batteries or universal 90-260 VAC, 50-60 Hz wall adapter
Average Battery Life	800 hours	800 hours	2000 hours
<b>Measurement Parameters</b>			
pH	Star A321 pH meter	Star A221 pH meter	Star A121 pH meter
Conductivity	Star A322 conductivity meter	Star A222 conductivity meter	Star A122 conductivity meter
Dissolved Oxygen	Star A323 optical/polarographic DO meter	Star A223 optical/polarographic DO meter	Star A123 polarographic DO meter
ph/Ion	Star A324 pH/ISE meter		
pH & Conductivity	Star A325 pH & conductivity meter		
pH & Dissolved Oxygen	Star A326 pH & DO meter		
pH, Ion, Conductivity & Dissolved Oxygen	Star A329 pH/ISE, conductivity & DO meter		



# Thermo Scientific Orion Star A320 Series

## Premium Portable Meters

### Rugged, easy-to-use field meters

Take your measurements at the source with our premium line of portable meters. Whether you need single, dual or multi-parameter measurement capabilities, our Orion Star A320 series portable meters offer an information-rich screen and user-friendly operation. This rugged, waterproof portable meter is ready to tackle the elements with you.

### Features that help you bring the lab outdoors:

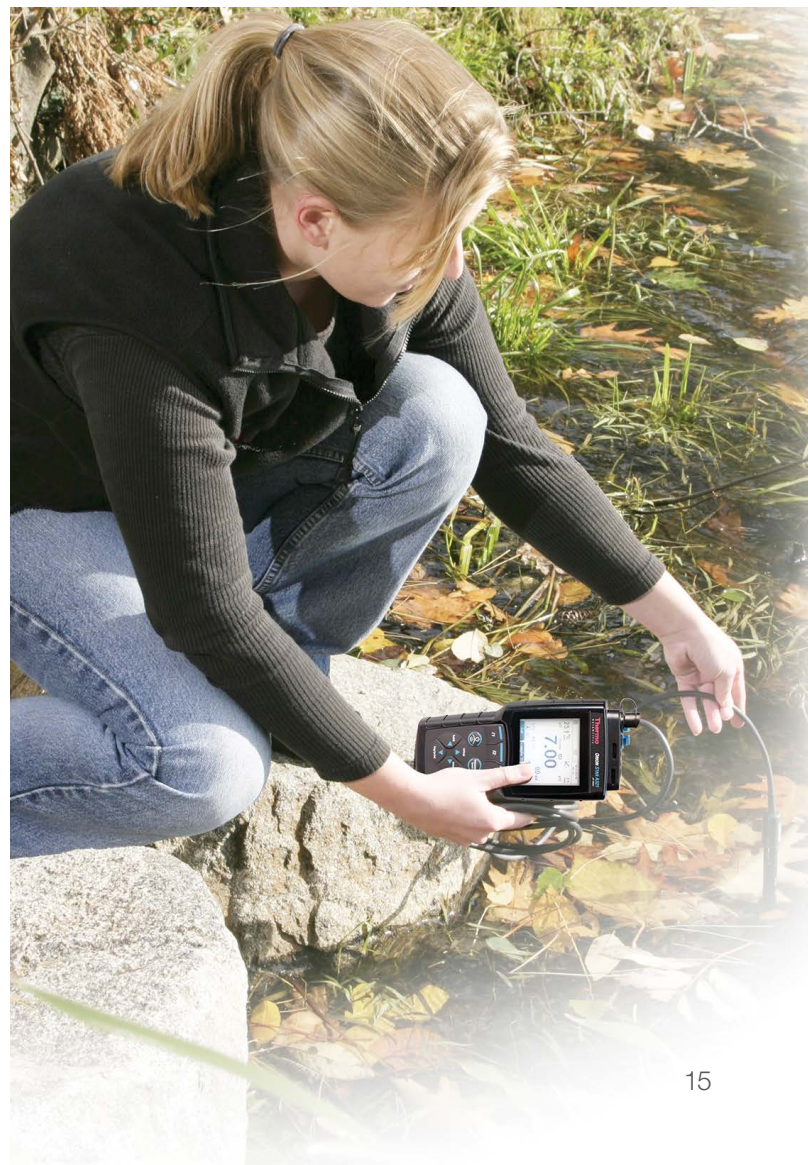
- Waterproof, IP67 meter housing
- Informative, easy-to-read backlit graphic display provides clear onscreen instructions for calibration and setup
- Data log reliably collects and date/time-stamps up to 5000 measurement sets with sample ID and user ID for reliable data tracking

### Premium portable meter features:

- Comprehensive keypad with menu-specific function keys and shortcut keys for quick and efficient meter navigation and control
- Designed to deliver fast and reliable measurements with Auto-Read, continuous and timed read modes and measurement stability indicator
- Non-volatile memory preserves data, even with loss of power
- Free Orion Star Com software facilitates data transfer to a computer via USB or RS232 connections
- Multilanguage interface with new languages added through software updates

### Ideal for Applications in:

- Contract testing
- Environmental
- Food and Beverage
- Industrial



# Thermo Scientific Orion A320

## Premium Portable Meters

### Star A321 pH Meter

Measure pH, mV, relative mV or ORP with temperature and perform up to a five point pH calibration with easy to follow onscreen instructions, automatic buffer recognition of NIST or DIN buffer groups with choice to manually enter custom buffer values plus calibration editing option allows individual points to be fixed without a full recalibration.

### Star A322 Conductivity Meter

Measure conductivity, TDS, salinity or resistivity with temperature and perform up to a five point calibration with onscreen instructions and calibration editing option. Conductivity features include auto-ranging measurements and temperature compensation for 5, 10, 15, 20 or 25°C reference temperatures and linear, non-linear, EP (USP) or off temperature curves.

### Star A323 Dissolved Oxygen Meter

Measure dissolved oxygen in percent saturation or mg/L with temperature using Orion polarographic or optical DO sensors with automatic sensor recognition. Calibrate using water-saturated air, air-saturated water, custom value (Winkler) and zero point options. A built-in barometer automatically adjusts DO readings for barometric pressure.



Easily transfer your measurement data to a computer using free Orion Star Com software\*.

### Star A324 pH/ISE Meter

Measure pH, mV, relative mV, ORP or ion concentration (ISE) with temperature and perform up to a five point pH or ISE calibration with easy to follow onscreen instructions and calibration editing option. Advanced ISE features include non-linear auto-blank and low-range stability.

### Star A325 pH/Conductivity Meter

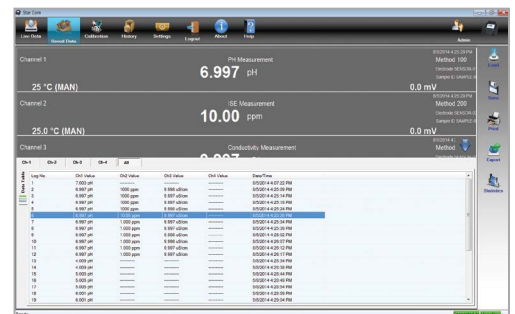
Includes the benefits of the Star A320 series pH and conductivity meters in one convenient system. Easily view individual measurements on a full screen display and quickly toggle to a split screen display to view multiple measurements simultaneously.

### Star A326 pH/DO Meter

Includes the benefits of the Star A320 series pH and DO meters in one convenient system. Easily view individual measurements on a full screen display and quickly toggle to a split screen display to view multiple measurements simultaneously.

### Star A329 pH/ISE/Conductivity/DO Meter

Includes the benefits of the Star A320 series pH/ISE, conductivity and DO meters in one convenient system. Easily view individual measurements on a full screen display and quickly toggle to a split screen display to view multiple measurements simultaneously.



\* Star Com software has been designed to work with Microsoft® Windows® XP, Windows Vista® and Windows 7 operating systems (computer must have latest Windows updates installed and .NET framework version 4.0). Although we are continuously striving to ensure the compatibility of our software with most operating systems, we cannot ensure compatibility.

# Orion Star A320: Advanced Portable Meters

## Orion Star A320 Advanced Portable Meters

Cat. No.	Description*	Included Electrode/Sensor Advantages
STARA3215	<b>Star A321 pH Meter Kit</b> <ul style="list-style-type: none"> <li>8107UWMMMD ROSS Ultra Triode pH/ATC electrode</li> <li>Orion pH 4, 7, 10 buffers and rinse solution pouches (10 pack each) and ROSS storage solution</li> </ul>	<b>8107UWMMMD ROSS Ultra pH/ATC electrode</b> <ul style="list-style-type: none"> <li>Measure pH and temperature with one low-maintenance electrode</li> <li>Durable epoxy body and 3-meter cable for simple use in the field</li> <li>TRIS buffer, sulfide and protein compatible with 1.5 year warranty**</li> </ul>
STARA3225	<b>Star A322 conductivity Meter Kit</b> <ul style="list-style-type: none"> <li>013010MD Orion 4-cell conductivity sensor</li> <li>Orion 1413 <math>\mu</math>S conductivity standard and rinse solution pouches (10 pack each)</li> </ul>	<b>013010MD Orion 4-cell conductivity sensor</b> <ul style="list-style-type: none"> <li>Designed to provide high accuracy across 1 <math>\mu</math>S to 200 mS and 4-cell sensor designed to reduce interference</li> <li>Rugged epoxy/graphite body with built-in temperature sensor and 3 meter cable for flexible positioning</li> </ul>
STARA3235	<b>Star A323 DO Meter Kit</b> <ul style="list-style-type: none"> <li>087010MD Orion optical DO sensor with calibration sleeve and stainless steel probe guard</li> </ul>	<b>087010MD Orion optical DO sensor</b> <ul style="list-style-type: none"> <li>Designed to provide precise dissolved oxygen readings across 0 to 50 mg/L</li> <li>Durable epoxy body and built-in temperature sensor</li> <li>Optical sensor requires no warm up, solutions or stirring</li> </ul>
STARA3245	<b>Star A324 pH/ISE Meter Kit</b> <ul style="list-style-type: none"> <li>8107UWMMMD ROSS Ultra Triode pH/ATC electrode</li> <li>Orion pH 4, 7, 10 buffers and rinse solution pouches (10 pack each) and ROSS storage solution</li> </ul>	<b>8107UWMMMD ROSS Ultra pH/ATC electrode</b> <ul style="list-style-type: none"> <li>Measure pH and temperature with one low-maintenance electrode</li> <li>Durable epoxy body and 3-meter cable for simple use in the field</li> <li>TRIS buffer, sulfide and protein compatible with 1.5 year warranty**</li> </ul>
STARA3255	<b>Star A325 pH/Conductivity Meter Kit</b> <ul style="list-style-type: none"> <li>8107UWMMMD ROSS Ultra Triode pH/ATC electrode</li> <li>013010MD Orion 4-cell conductivity sensor</li> <li>Orion pH 4, 7, 10 buffers and rinse solution pouches (10 pack each) and ROSS storage solution</li> <li>Orion 1413 <math>\mu</math>S conductivity standard pouches (10 pack)</li> </ul>	<b>8107UWMMMD ROSS Ultra pH/ATC electrode</b> <ul style="list-style-type: none"> <li>Measure pH and temperature with one low-maintenance electrode</li> <li>Durable epoxy body and 3-meter cable for simple use in the field</li> <li>TRIS buffer, sulfide and protein compatible with 1.5 year warranty**</li> </ul> <b>013010MD Orion 4-cell conductivity sensor</b> <ul style="list-style-type: none"> <li>Designed to provide high accuracy across 1 <math>\mu</math>S to 200 mS and 4-cell sensor designed to reduce interference</li> <li>Rugged epoxy/graphite body with built-in temperature sensor and 3 meter cable for flexible positioning</li> </ul>
STARA3265	<b>Star A326 pH/DO Meter Kit</b> <ul style="list-style-type: none"> <li>8107UWMMMD ROSS Ultra Triode pH/ATC electrode</li> <li>087010MD Orion optical DO sensor with calibration sleeve and stainless steel probe guard</li> <li>Orion pH 4, 7, 10 buffer pouches (10 pack each) and ROSS storage solution</li> </ul>	<b>8107UWMMMD ROSS Ultra pH/ATC electrode</b> <ul style="list-style-type: none"> <li>Measure pH and temperature with one low-maintenance electrode</li> <li>Durable epoxy body and 3-meter cable for simple use in the field</li> <li>TRIS buffer, sulfide and protein compatible with 1.5 year warranty**</li> </ul> <b>087010MD Orion optical DO sensor</b> <ul style="list-style-type: none"> <li>Designed to provide precise DO readings across 0 to 50 mg/L</li> <li>Optical sensor requires no warm up, solutions or stirring</li> </ul>
STARA3295	<b>Star A329 pH/ISE/Conductivity/DO Meter Kit</b> <ul style="list-style-type: none"> <li>8107UWMMMD ROSS Ultra Triode pH/ATC electrode</li> <li>013010MD Orion 4-cell conductivity sensor</li> <li>087010MD Orion optical DO sensor with calibration sleeve and stainless steel probe guard</li> <li>Orion pH 4, 7, 10 buffers and rinse solution pouches (10 pack each) and ROSS storage solution</li> <li>Orion 1413 <math>\mu</math>S conductivity standard pouches (10 pk)</li> </ul>	<b>8107UWMMMD ROSS Ultra pH/ATC electrode</b> <ul style="list-style-type: none"> <li>Measure pH and temperature with one low-maintenance electrode</li> <li>Durable epoxy body and 3-meter cable for simple use in the field</li> </ul> <b>013010MD Orion 4-cell conductivity sensor</b> <ul style="list-style-type: none"> <li>Designed to provide high accuracy across 1 <math>\mu</math>S to 200 mS and 4-cell sensor designed to reduce interference</li> </ul> <b>087010MD Orion optical DO sensor</b> <ul style="list-style-type: none"> <li>Designed to provide precise DO readings across 0 to 50 mg/L</li> <li>Optical sensor requires no warm up, solutions or stirring</li> </ul>

\* Note: Each meter kit includes protective armor, a hard-sided field case, four AA batteries and computer interface cable.

\*\* Subject to terms of standard limited warranty.



# Thermo Scientific Orion Star A220 Series

## Advanced Portable Meters

### Easy-to-use, dependable field meters

Don't leave your measurements to chance when analyzing samples outside the lab. Our Orion Star A220 series portable meters offer the reliability you need in a user-friendly package for your dedicated pH, conductivity or dissolved oxygen testing needs. All critical data is shown with your measurement including temperature, date and time, read type, measurement stability, active calibration info, and power source status.

### Features that help you bring the lab outdoors:

- Waterproof, IP67 meter housing
- Easy-to-read backlit graphic display provides clear onscreen instructions for calibration and setup
- User-friendly operation with onscreen calibration and setup instructions

### Advanced portable meter features:

- Comprehensive keypad with menu-specific function keys and shortcut keys for quick and efficient meter navigation and control
- Auto-Read and continuous read modes and measurement stability indicator
- Data log collects up to 1000 measurement sets with time and date stamp and non-volatile memory preserves data
- Free Orion Star Com software facilitates data transfer to a computer via USB or RS232 connections
- Multilanguage interface with new languages added through software updates

### Ideal for Applications in:

- Chemical
- Environmental
- Water
- Wastewater



# Thermo Scientific Orion Star A220

## Advanced Portable Meters

### Star A221 pH Meter

Measure pH, mV, relative mV or ORP with temperature and perform up to a five point pH calibration with easy to follow onscreen instructions and automatic buffer recognition of NIST or DIN buffer groups with choice to manually enter custom buffer values.

### Star A222 Conductivity Meter

Measure conductivity, TDS, salinity or resistivity with temperature and perform up to a five point calibration with onscreen instructions. Improve readings using linear, non-linear or off temperature compensation settings with 15, 20 or 25°C reference temperatures and auto-ranging conductivity values.

### Star A223 DO Meter

Measure dissolved oxygen in percent saturation or mg/L with temperature using Orion polarographic or optical DO sensor and built-in barometer for pressure compensated readings. Calibrate using water-saturated air, air-saturated water, custom value (Winkler) and zero point options.



### Orion Star A220 Advanced Portable Meters

Cat. No.	Description*	Included Electrode/Sensor Advantages
STARA2215	<b>Star A221 pH Meter Kit</b> <ul style="list-style-type: none"> <li>8107UWMMMD ROSS Ultra Triode pH/ATC electrode</li> <li>Orion pH 4, 7, 10 buffers and rinse solution pouches (10 pack each) and ROSS storage solution</li> </ul>	<b>8107UWMMMD ROSS Ultra pH/ATC electrode</b> <ul style="list-style-type: none"> <li>Measure pH and temperature with one low-maintenance electrode</li> <li>Durable epoxy body and 3-meter cable for simple use in the field</li> <li>TRIS buffer, sulfide and protein compatible with 1.5 year warranty**</li> </ul>
STARA2225	<b>Star A222 Conductivity Meter Kit</b> <ul style="list-style-type: none"> <li>013010MD Orion 4-cell conductivity sensor</li> <li>Orion 1413 <math>\mu</math>S conductivity standard and rinse solution pouches (10 pack each)</li> </ul>	<b>013010MD Orion 4-cell conductivity sensor</b> <ul style="list-style-type: none"> <li>Designed to provide high accuracy across 1 <math>\mu</math>S to 200 mS and 4-cell sensor designed to reduce interference</li> <li>Rugged epoxy/graphite body with built-in temperature sensor and 3 meter cable for flexible positioning</li> </ul>
STARA2235	<b>Star A223 DO Meter Kit</b> <ul style="list-style-type: none"> <li>087010MD Orion optical DO sensor with calibration sleeve and stainless steel probe guard</li> </ul>	<b>087010MD Orion optical DO sensor</b> <ul style="list-style-type: none"> <li>Designed to provide precise DO readings across 0 to 50 mg/L</li> <li>Durable epoxy body and built-in temperature sensor</li> <li>Optical sensor requires no warm up, solutions or stirring</li> </ul>

\* Note: Each meter kit includes protective armor, a hard-sided field case, four AA batteries and computer interface cable.

\*\* Subject to terms of standard limited warranty.



# Thermo Scientific Orion Star A120

## Basic Portable Meters

Ideal for Applications in:

- Academic
- Power

### Budget-friendly, simplified field meters

Get started with outdoor sample analysis in the field with our Orion Star A120 series economical portable meters. Enjoy a rugged design and user-friendly features at an affordable price.

### Basic portable meter features:

- Simplified, easy to read display
- User-friendly operation with basic calibration text prompts
- Uncomplicated, reliable measurements with emphasized measure key, selectable read modes and measurement stability indicator

### Star A121 pH Meter

Measure pH, mV or relative mV with temperature and perform up to a three point pH calibration with automatic buffer recognition of NIST or DIN buffer groups.

### Star A122 Conductivity Meter

Measure conductivity or TDS with temperature with temperature compensation options and auto-ranging conductivity readings and perform a one point automatic or manual conductivity calibration.

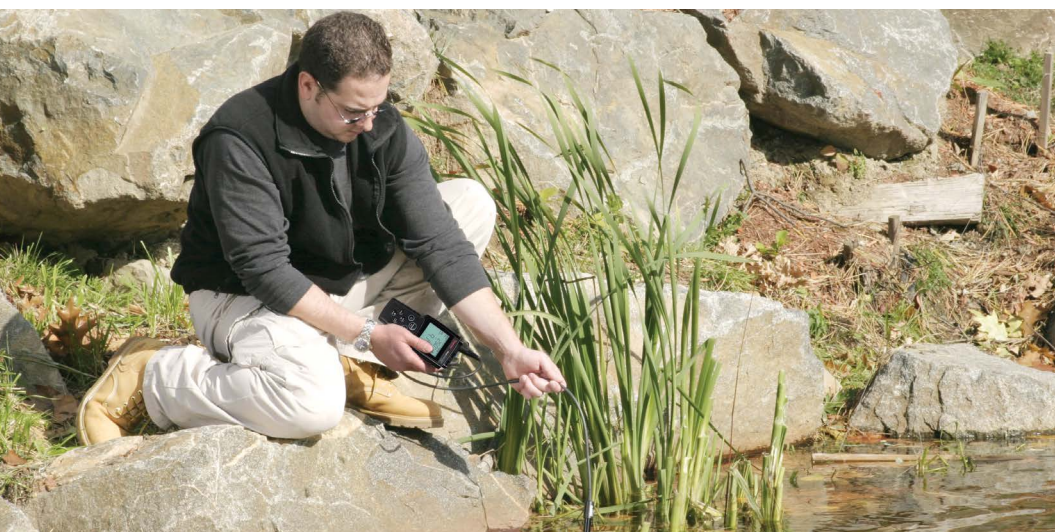
### Star A123 DO Meter

Measure dissolved oxygen in percent saturation or mg/L with temperature and calibrate using water-saturated air or custom value using a Winkler titration.

### Orion Star A120 Basic Portable Meters

Cat. No.	Description*	Included Electrode/Sensor Advantages
STARA1215	<b>Star A121 pH Meter Kit</b> <ul style="list-style-type: none"><li>• 9107BNMD Orion Triode pH/ATC electrode</li><li>• 916099 Orion 60 mL pH buffer kit</li><li>• Orion rinse solution pouches (10-pack)</li></ul>	<b>9107BNMD Orion Triode pH/ATC electrode</b> <ul style="list-style-type: none"><li>• Measure pH and temperature with one lowmaintenance electrode</li><li>• Durable epoxy body for break resistant operation</li></ul>
STARA1225	<b>Star A122 Conductivity Meter Kit</b> <ul style="list-style-type: none"><li>• 011050MD Orion 2-cell conductivity sensor</li><li>• 011007 Orion 1413 <math>\mu\text{S}</math> conductivity standard</li><li>• Orion rinse solution pouches (10-pack)</li></ul>	<b>011050MD Conductivity sensor</b> <ul style="list-style-type: none"><li>• Designed to provide high accuracy across 1 <math>\mu\text{S}/\text{cm}</math> to 20 <math>\text{mS}/\text{cm}</math></li><li>• Durable epoxy/platinum body with built-in temperature sensor</li></ul>
STARA1235	<b>Star A123 DO Meter Kit</b> <ul style="list-style-type: none"><li>• 083005MD Orion polarographic DO sensor</li><li>• 080513 DO probe maintenance kit</li></ul>	<b>083005MD polarographic DO sensor</b> <ul style="list-style-type: none"><li>• Designed to provide precise DO readings across 0 to 20 <math>\text{mg}/\text{L}</math></li><li>• Durable epoxy body and screw-on membrane caps for quick and easy maintenance</li></ul>

\* Note: Each meter kit includes protective armor, a hard-sided field case and four AA batteries.





## Orion Versa Star Pro Benchtop Meters

Key Specifications	Range/Relative Accuracy	Cat. No.
<ul style="list-style-type: none"> <li>-2.000 to 20.000 pH   ±0.002 pH</li> <li>-2000.0 to 2000.0 mV   ±0.2 mV or ±0.05% reading</li> <li>-5.0 to 105.0°C, 23.0 to 221.0°F   ±0.1°C (0.1° resolution)</li> <li>Conductivity: 0.001 µS to 3000 mS (auto-ranging)   0.5% reading ±0.01 µS ≤ 3 µS, 0.5% reading ±1 digit &gt; 3 µS</li> <li>TDS: 0.001 to 200.0 ppt (0.02 to 9.99 factor), Salinity: 0.06 to 80.00 psu, 0.05 to 42.00 ppt, Resistivity: 2 ohm to 100.0 megohm   0.5% reading ±1 digit</li> <li>-5.0 to 105.0°C, 23.0 to 221.0°F   ±0.1°C (0.1° resolution)</li> </ul>		VSTAR12 VSTAR52
<ul style="list-style-type: none"> <li>Polarographic: 0.00 to 90.00 mg/L, 0.0 to 600.0 % saturation   ±0.2 mg/L or ±2% reading</li> <li>Optical: 0.00 to 50.00 mg/L, 0.0 to 500.0 % saturation   ±0.1 mg/L to 8, ±0.2 mg/L to 20, ±10% reading to 50 mg/L</li> <li>450.0 to 850.0 mmHg   ±6 mmHg (internal barometer)</li> <li>0.0 to 50.0°C, 32.0 to 122.0°F   ±0.1°C (0.1° resolution)</li> </ul>		VSTAR22 VSTAR52 VSTAR92 VSTAR93
<ul style="list-style-type: none"> <li>-2.000 to 20.000 pH   ±0.002 pH</li> <li>-2000.0 to 2000.0 mV   ±0.2 mV or ±0.05% reading</li> <li>0.0001 to 19990 ISE (ppm, M, mg/L, %, ppb or none)   ±0.2 mV or ±0.05% reading</li> <li>-5.0 to 105.0°C, 23.0 to 221.0°F   ±0.1°C (0.1° resolution)</li> </ul>		VSTAR32 VSTAR92 VSTAR93
<ul style="list-style-type: none"> <li>-2.000 to 20.000 pH   ±0.002 pH</li> <li>-2000.0 to 2000.0 mV   ±0.2 mV or ±0.05% reading</li> <li>-5.0 to 105.0°C, 23.0 to 221.0°F   ±0.1°C (0.1° resolution)</li> <li>LogR Temperature: 0.0 to 100.0°C, 32.0 to 212.0°F   ±0.5°C (1 to 3 point LogR temperature calibration)</li> <li>Up to 6 point calibration, 1 point temperature offset, adjustable isopotential point (pH and ISE)</li> <li>Data log 2000 measurement sets with date/time stamp</li> <li>USB (2) and RS232 external device outputs</li> <li>100-240 VAC, 50/60 Hz universal power adapter</li> </ul>		VSTAR40A2 VSTAR40B2 VSTAR92 VSTAR93
		VSTAR82
		All Versa Star Pro Meters

## Orion Star A320 Portable Meters

Key Specifications	Range/Relative Accuracy	Cat. No.
<ul style="list-style-type: none"> <li>-2.000 to 20.000 pH   ±0.002 pH</li> <li>-2000.0 to 2000.0 mV   ±0.2 mV or ±0.05%</li> <li>-5.0 to 105.0°C, 23.0 to 221.0°F   ±0.1°C (0.1° resolution)</li> <li>Conductivity: 0.001 µS to 3000 mS (auto-ranging)   0.5% reading ±0.01 µS ≤ 3 µS, 0.5% reading ±1 digit &gt; 3 µS</li> <li>TDS: 0.001 to 200.0 ppt (0.02 to 9.99 factor), Salinity: 0.06 to 80.00 psu, 0.05 to 42.00 ppt, Resistivity: 2 ohm to 100.0 megohm   0.5% reading ±1 digit</li> <li>-5.0 to 105.0°C, 23.0 to 221.0°F   ±0.1°C (0.1° resolution)</li> </ul>		STARA3215 STARA3255 STARA3265
<ul style="list-style-type: none"> <li>Polarographic: 0.00 to 90.00 mg/L, 0.0 to 600.0 % saturation   ±0.2 mg/L or ±2% reading</li> <li>Optical: 0.00 to 50.00 mg/L, 0.0 to 500.0 % saturation   ±0.1 mg/L to 8, ±0.2 mg/L to 20, ±10% reading to 50 mg/L</li> <li>450 to 850 mmHg   ±6 mmHg (internal barometer)</li> <li>0.0 to 50.0°C, 32.0 to 122.0°F   ±0.1°C (0.1° resolution)</li> </ul>		STARA3225 STARA3255 STARA3295
<ul style="list-style-type: none"> <li>-2.000 to 20.000 pH   ±0.002 pH</li> <li>-2000.0 to 2000.0 mV   ±0.2 mV or ±0.05% reading</li> <li>0.0001 to 19990 ISE (ppm, M, mg/L, %, ppb or none)   ±0.2 mV or ±0.05% reading</li> <li>-5.0 to 105.0°C, 23.0 to 221.0°F   ±0.1°C (0.1° resolution)</li> </ul>		STARA3235 STARA3265 STARA3295
<ul style="list-style-type: none"> <li>Up to 5 point calibration, 1 point temperature offset</li> <li>Data log 5000 measurement sets with date/time stamp</li> <li>USB and RS232 external device outputs</li> <li>4 AA batteries (included) or universal power adapter</li> </ul>		STARA3245 STARA3295
		All Star A320 Meters

## Orion Star A210 and Dual Star Benchtop Meters and Orion Star A220 Portable Meters

Key Specifications	Range/Relative Accuracy	Cat. No.
<ul style="list-style-type: none"> <li>-2.000 to 20.000 pH   ±0.002 pH</li> <li>-2000.0 to 2000.0 mV   ±0.2 mV or ±0.05% reading</li> <li>-5.0 to 105.0°C, 23.0 to 221.0°F   ±0.1°C (0.1° resolution)</li> <li>Conductivity: 0.001 µS to 3000 mS (auto-ranging)   0.5% reading ± 0.01 µS ≤ 3 µS, 0.5% reading ±1 digit &gt; 3 µS</li> <li>TDS: 0.001 to 200.0 ppt (0.02 to 9.99 factor), Salinity: 0.06 to 80.00 psu, 0.05 to 42.00 ppt (Star A210), Resistivity: 2 ohm to 100.0 megohm   0.5% reading ±1 digit</li> <li>-5.0 to 105.0°C, 23.0 to 221.0°F   ±0.1°C (0.1° resolution)</li> </ul>		STARA2115 STARA2155 STARA2165 STARA2215
<ul style="list-style-type: none"> <li>Polarographic: 0.00 to 90.00 mg/L, 0.0 to 600.0 % saturation   ±0.2 mg/L or ±2% reading</li> <li>Optical: 0.00 to 50.00 mg/L, 0.0 to 500.0 % saturation   ±0.1 mg/L to 8, ±0.2 mg/L to 20, ±10% reading to 50 mg/L</li> <li>450 to 850 mmHg   ±6 mmHg (internal barometer)</li> <li>0.0 to 50.0°C, 32.0 to 122.0°F   ±0.1°C (0.1° resolution)</li> </ul>		STARA2125 STARA2155 STARA2225
<ul style="list-style-type: none"> <li>-2.000 to 20.000 pH   ±0.002 pH</li> <li>-2000.0 to 2000.0 mV   ±0.2 mV or ±0.05%</li> <li>0.0001 to 19900 ISE (ppm, M, mg/L, %, ppb or none)   ±0.2 mV or ±0.05%</li> <li>-5.0 to 105.0°C, 23.0 to 221.0°F   ±0.1°C (0.1° resolution)</li> </ul>		STARA2135 STARA2165 STARA2235
<ul style="list-style-type: none"> <li>-2.000 to 20.000 pH   ±0.002 pH</li> <li>-2000.0 to 2000.0 mV   ±0.2 mV or ±0.05%</li> <li>0.0001 to 19900 ISE (ppm, M, mg/L, %, ppb or none)   ±0.2 mV or ±0.05%</li> <li>-5.0 to 105.0°C, 23.0 to 221.0°F   ±0.1°C (0.1° resolution)</li> </ul>		STARA2145
<ul style="list-style-type: none"> <li>-2.000 to 19.999 pH   ±0.002 pH</li> <li>-1999.9 to 1999.9 mV   ±0.2 mV or ±0.05%</li> <li>0.0001 to 19900 ISE (ppm, M, %, ppb or none)   ±0.2 mV or ±0.05%</li> <li>-5.0 to 105.0°C, 23.0 to 221.0°F   ±0.1°C (0.1° resolution)</li> </ul>		2115001
<ul style="list-style-type: none"> <li>Up to 5 point calibration, 1 point temperature offset</li> <li>Data log 2000 (Star A210) or 1000 (Star A220) measurement sets with date/time stamp</li> <li>USB and RS232 external device outputs</li> <li>Universal power adapter or 4 AA batteries</li> </ul>		All Star A210 and Star A220 Meters
<ul style="list-style-type: none"> <li>Up to 6 point calibration, 1 point temperature offset</li> <li>Data log 1000 measurement sets with date/time stamp</li> <li>USB and RS232 external device outputs</li> <li>100-240 VAC, 50/60 Hz universal power adapter</li> </ul>		Dual Star Meter

## Orion Star A110 Series Benchtop Meters and Orion Star A120 Series Portable Meters

Key Specifications	Range/Relative Accuracy	Cat. No.
<ul style="list-style-type: none"> <li>-2.00 to 16.00 pH   ±0.01 pH</li> <li>-1600.0 to 1600.0 mV   ±0.2 mV or ±0.05%</li> <li>-5.0 to 105.0°C, 23.0 to 221.0°F   ±0.1°C</li> <li>Conductivity: 0.01 µS to 200.0 mS   0.5% ±1 digit</li> <li>TDS: 0 to 19990 mg/L   0.5% ±1 digit</li> <li>-5.0 to 105.0°C, 23.0 to 221.0°F   ±0.1°C</li> </ul>		STARA1115 STARA1215
<ul style="list-style-type: none"> <li>0.00 to 20.00 mg/L, 0.0 to 200.0 % sat.   ±0.2 mg/L</li> <li>450 to 850 mmHg   manual input</li> <li>0.0 to 50.0°C, 32.0 to 122.0°F   ±0.1°C</li> </ul>		STARA1125 STARA1225
<ul style="list-style-type: none"> <li>Up to 3 point calibration, 1 point temperature offset</li> <li>Data log 50 measurement sets</li> <li>Universal power adapter or 4 AA batteries</li> </ul>		STARA1135 STARA1235
		All Star A110 and Star A120 Meters

# Orion Meter Accessories

Increase your productivity by adding accessories to your benchtop or portable meter.

**Complement your benchtop meter with key accessories that make you more productive.**



## Stirrer Probes

Uniformly mix solutions using five selectable stirring speeds with the meter-controlled Orion Star stirrer probe. Designed to be easily positioned and quickly rinsed between samples. The stirrer probe is designed to fit into benchtop electrode stands.

Our premium Versa Star Pro benchtop meters can operate two stirrer probes simultaneously, so you can measure your samples faster.



## Meter-attached Electrode Stand

Included with every Thermo Scientific Orion Star A and Versa Star Pro benchtop meter, the electrode stand holds a variety of sensors for easy placement in and out of samples, as well as consolidated rinsing between samples.



## Benchtop Meter Accessories

Description	Cat. No.
Orion Star stirrer probe	096019
Orion Star A and Versa Star Pro benchtop meter-attached electrode stand, includes electrode arm, holder and meter bracket	STARA-BEA
Weighted base for use with STARA-BEA electrode arm and holder	STARA-HB
Orion Star A series ink ribbon printer with cable, 110V/220V	STARA-106
Universal power adapter for Star A series meters	1010003
Universal power adapter for Versa Star Pro meters	STARA-PWR
Versa Star Pro meter IQ/OQ documentation, valid for all Versa Star Pro configurations	IQOQ-VSTAR
Star A series meter IQ/OQ documentation, valid for all Star A210 series benchtop meters	IQOQ-STARA
Orion Navigator Pro computer software for Orion Versa Star Pro meters, includes one software license on USB flash drive and user manual	VSTAR-NPUSB

# Portable Meter Accessories

## Protection and organization for your portable meter.



### Portable Meter Armor

Because anything can happen in the field, add extra protection with durable portable meter armor.

Included with all Orion Star A portable meter kits, the armor features dedicated holders for pH, conductivity and dissolved oxygen sensors. An adjustable wrist/belt strap can secure the meter to fixtures such as pipes, or converts into a built-in meter stand.



### Hard-sided Field Case

Our field case is specially designed to efficiently transport everything you need for field measurements. Sensors can stay connected with the meter while in the case. A removable door makes it easy to use the cable management system.

The field case, which is included with all Orion Star A portable meter kits, helps you stay organized while protecting your instrumentation.

## Portable Meter Accessories

Description	Cat. No.
Orion Star A portable meter armor with pH electrode holder, conductivity and DO sensor holder, stand and adjustable hand-strap	STARA-AR
Orion Star A portable meter hard-sided field case	STARA-CS
Orion Star A series ink ribbon printer with cable, 110V/220V	STARA-106
Universal power adapter for Star A series meters	1010003
Star A series meter IQ/OQ documentation, valid for all Star A320 and Star A220 series portable meters	IQOQ-STARA







## Thermo Scientific Orion Meters

Resources for electrochemistry and water analysis equipment

### Thermo Scientific Orion Meters

Visit [thermofisher.com/OrionMeters](http://thermofisher.com/OrionMeters) for a complete listing of all Thermo Scientific Orion meters and kits plus application notes, software updates and free Thermo Scientific Orion Star Com data transfer software.

### Thermo Scientific Orion Lab, Field and Online Products

Visit [thermofisher.com/water](http://thermofisher.com/water) for information on all of the Thermo Scientific Orion laboratory, field and online equipment for pH, ISE, conductivity and dissolved oxygen analysis plus Thermo Scientific Orion UV-Vis spectrophotometry, colorimetry and turbidity products.

Hassellunden 11A, 2765 Smørum

Tel. 45 95 04 10

[info@buhl-bonsoe.dk](mailto:info@buhl-bonsoe.dk)

[www.buhl-bonsoe.dk](http://www.buhl-bonsoe.dk)