

Technotes

Highlighting technical features for
Thermo Scientific Orion pH Meter Kits

pH Test Method Requirements For Highly-Regulated Labs

- pH sensor (H⁺) and suitable reference
- Temperature device (embedded in electrode)
- Voltage measurement meter with minimum 3-point calibration
- pH calibration slope of 90-105%
- pH calibration offset of ± 30 mV (0.5 pH units at 25° C)

Why are Thermo Scientific Orion pH meter kits a great choice for your lab?

Orion pH meters are designed with features that assist in complying with USP <791> requirements.

Log #	Log Date & Time	Channel	Method No.	Electrode	Module No.	User ID	Pt#	pH	mV	Temp°C	Avg. Slope	Slope	P1-P2	P2-P3	P3-P4	P4-P5	P5-P6	Offset mV
102	15-Mar-14, 2:12 PM	:1	:100	----	SAMPLE-01	----	1	2.000	290.4	25.0		∞	97.7 %	98.6 %	97.4 %	98.6 %	----	1.3
101	15-Mar-14, 1:06 PM						2	4.010	174.2	25.0								-0.2
							3	6.997	0.0	25.0	98.1 %							-0.2
							4	10.013	-173.8	25.0								1.9
							5	12.000	-289.7	25.0								

Clearly view the slope and offset values on the Thermo Scientific Orion Versa Star meter's large color display.

pH measurements within the pharmaceutical industry often reference USP<791>. Thermo Scientific™ Orion™ pH meter kits are part of a high-quality pH test method designed to assist with compliance to USP <791> pH requirements*.

Orion pH meters feature the following specifications commonly desired by highly-regulated labs:

- Perform 5- or 6- point pH calibration
- User-selectable 0.01 or 0.001 pH resolution
- Temperature compensation with ± 0.1 °C relative accuracy and 0.1 °C resolution
- Input impedance greater than 10^{12} ohms
- Designed to easily obtain slope and offset values
- Track user activity with date/time stamped records

Premium

Orion Versa Star pH meter kit

- The large color display of the Thermo Scientific™ Orion™ Versa Star™ meter provides slope and offset in calibration log
- Perform up to a 6-point pH calibration
- Customize interchangeable modules for future measurement requirements
- Includes stirrer probe and TRIS-compatible, chemically-resistant glass body pH/ATC electrode



Advanced

Orion Star A211 pH meter kit

- The backlit graphic screen of the Thermo Scientific™ Orion Star™ A211 meter displays the slope in the calibration log
- Offset value obtainable by exporting calibration log to a computer or printer
- Perform up to a 5-point pH calibration
- Includes TRIS-compatible, chemically-resistant glass body pH/ATC electrode



Portable

Orion Star A321 pH meter kit

- The backlit graphic screen of the Thermo Scientific Orion Star A321 meter displays the slope in the calibration log
- Offset value obtainable by exporting calibration log to a computer or printer
- Protected by waterproof, IP67-rated housing
- Includes TRIS-compatible, gel-filled pH/ATC electrode designed for low maintenance field operation



Thermo
SCIENTIFIC

Thermo Scientific Orion pH Meter Kits

A great choice to assist in meeting pharmaceutical industry standards

The meter kits include a Thermo Scientific™ Orion™ ROSS Ultra™ Triode™ pH/ATC electrode that simultaneously measures pH and temperature, and a ROSS reference that is designed for compatibility in samples containing TRIS buffers, proteins and sulfides.

Orion pH buffers are traceable to NIST and have a stated pH value accurate to ±0.02 pH, making them a great choice for a full range of pH testing.



	Orion Versa Star pH Meter Kit	Orion Star A211 pH meter kit	Orion Star A321 pH meter kit
Cat. No.	VSTAR12	STARA2115	STARA3215
Description	<ul style="list-style-type: none"> • Simultaneously measure pH and temperature for easy use and cleaning • Robust glass body for chemical resistance in a variety of samples • TRIS buffer, sulfide and protein compatible with industry-leading 2-year warranty** 	<ul style="list-style-type: none"> • Simultaneously measure pH and temperature for easy use and cleaning • Robust glass body for chemical resistance in a variety of samples • TRIS buffer, sulfide and protein compatible with industry-leading 2-year warranty** 	<ul style="list-style-type: none"> • Measure pH and temperature with one low-maintenance gel-filled electrode • Durable epoxy body and 3-meter cable for simple use in the field • TRIS buffer, sulfide and protein compatible with industry-leading 18-month warranty**
Measurement Read Modes	Auto-read, Timed, Single-shot, Continuous	Auto-read, Timed, Continuous	Auto-read, Timed, Continuous
Methods	10 per channel	10 per channel	10 per channel
Data Log	2000 with date/time	2000 with date/time	5000 with date/time
Calibration Log	10 per mode	10	10
Identification Options	Electrode ID, Sample ID, User ID	Sample ID, User ID	Sample ID, User ID
Alarms	Set Point, High/Low Limit, Calibration Due	High/Low Limit, Calibration Due	High/Low Limit, Calibration Due
External Device Output	USB (2), RS232	USB, RS232	USB, RS232
Kit Includes	<ul style="list-style-type: none"> • 8302BNUMD ROSS Ultra Triode pH/ATC electrode • 096019 Orion Star stirrer probe • 810199 ROSS pH buffer and solution kit 	<ul style="list-style-type: none"> • 8302BNUMD ROSS Ultra Triode pH/ATC electrode • 810199 ROSS pH buffer and solution kit 	<ul style="list-style-type: none"> • 8107UWMMMD ROSS Ultra Triode pH/ATC electrode • Orion pH 4, 7, 10 buffers and rinse solution pouches (10 pack each) and ROSS storage solution

* Consult with the SOP prepared by your internal quality or regulatory group when performing your testing per USP <791>.

** Subject to terms of manufacturer's standard limited warranty. Please contact your sales representative for more details.

www.thermoscientific.com/orionmeters

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