

Automate acid-base, redox and ion titrations for simple accuracy

Potentiometric titrator for accurate titrations with easily reportable results.



Markets

- Food and Beverage
- Environmental
- Water
- Wastewater
- Industrial
- Consumer Products
- Academic
- Research

The Thermo Scientific™ Orion Star™ T940 All-in-one titrators are designed to increase your laboratory productivity by automating titrations. Our core electrochemistry technology is integrated with a state-of-the-art reagent dispensing system to create modern, simplified automated titrators designed to make performing titrations easier, more reliable and more reproducible than manual titrations.

Use the Orion Star T940 All-in-one titrator for flexible acid-base, redox or ion concentration titrations including:

- Titratable acidity of juices and wines
- Acidity of food products
- Alkalinity of waters
- Sulfite/SO₂ in juice and wine
- Ascorbic acid (vitamin C) in food products
- Chloride/salt in food products

Titration techniques include equivalence point titrations, preset pH or mV endpoint titrations plus MKA mode for automated known addition of various ions for versatile sample analysis. The automated titrant delivery system with high-accuracy burette and dispenser provides consistent results. Automatic results calculations simplifies analysis and reduces computational errors.

This compact titrator is designed to:

- Offer easy-to-use navigation from setup to live titration analysis to data transfer
- Showcase titrations, onscreen instructions and help menus on a large color graphic touchscreen display
- Create and save up to ten user-defined methods
- Save up to 100 titration data sets with date/time stamp
- Facilitate data transfer to printer, computer or USB drive

Durable Titrators with Rugged Design

Benefits of Orion Star T940 All-in-one Titrator:

- **Accurate, Reproducible Results:** Automating the titration workflow enables analysis to be run using the same setup parameters and calculations every time.
- **Fast Setup Time:** Setup and save electrode, titrant and titration parameters once using methods.
- **Prioritize Lab Throughput:** Start the titration, and let the instrument run unattended.
- **Minimal Cost and Downtime:** Easily replace titrator parts to minimize maintenance downtime while long lasting electrodes may reduce the cost of ownership.
- **Securely Document Test Results:** View results live, in the summary table and within the 100-point data log.
- **Applications Database:** Tested and validated preprogrammed methods can be easily loaded onto your titrator via USB flash drive.



Titrator connections have clearly labeled functions, including three USB ports for printer, USB flash drive, and computer software connections.



Minimize downtime with easy-to-install and easy-to-replace burettes, tubing, dispenser and additional high-wear components.



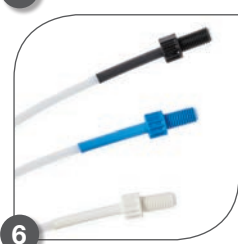
Electrode holder provides secure, smooth electrode movement throughout the measurement process.



Pair with premium ROSS pH, Orion redox or ion selective electrode technology to provide a complete measurement system optimized for accurate, reproducible sample analysis.



Bottle holder helps secure titrant to prevent spills and can be easily disconnected from the titrator for flexible placement on the lab bench.



Color-coded tubing and connectors simplify tubing installation and maintenance.



Stirrer probe provides consistent sample mixing, helps prevent damage to electrodes and is easy to rinse between samples.

Product Specifications

Orion Star T940 All-in-one Titrator

Titration Technique	Equivalence point or preset endpoint
Equivalence Points	1 or 2
Preset Endpoints	1, 2 or 3
Multiple Known Addition Points	Up to 5
Titration Types	Direct or back titration
Blank Options	Fixed value or variable value using titration
Cycles Per Titration Run	Up to 5 cycles with option to exclude cycles from average results and RSD calculations
Titrant Determination	Standardization titration or manual concentration input
Titration Process Control	Routine, quick, careful or user defined
Titration Precision	±0.5 % RSD, dependent on environment and handling conditions
Stirrer Probe Speeds	5 selectable speeds, 250 to 3700 RPM
Sample ID	Auto-incremental, manual or off
Titration Setup Wizard	Yes, using Start a New Titration workflow
Methods	Up to 10 customizable methods with optional password protection
Methods Transfer	Import/export via USB flash drive, summary to computer software or compact printer
Data Logs	Sample titration, titrant standardization, calibration, direct measure – 100 data sets each
Data Log Export	CSV or Report (PDF) file, short or long format
Time and Date	Yes, with nonvolatile battery backup
Direct Measure Mode	pH, redox or ion concentration with mV and temperature
pH Range / Resolution / Relative Accuracy	-2.000 to 20.000 pH / 0.001, 0.01, 0.1 (user selectable) / ±0.002 pH
ISE Range / Resolution / Relative Accuracy	0.0001 to 19990 0.0001 minimum, 1 to 4 significant digits (user selectable) ±0.2 mV or ±0.05% of reading, whichever is greater
Calibration Mode	1 to 5 point pH, 1 point relative mV, 1 to 5 point ISE
mV Range / Resolution / Relative Accuracy	-2000.0 to +2000.0 mV / 0.1 mV / ±0.2 mV
Temperature Range / Resolution / Relative Accuracy	-5.0 to 100.0 °C; 23.0 to 212 °F / 0.1 °C; 0.1 °F / ±0.2 °C
Temperature Input	Manual or automatic with optional 1 point ATC probe offset calibration
Display Type	5.7" color capacitive touchscreen, 640 x 480 resolution, with lab glove compatibility
Display Backlight	Yes, adjustable
Languages	Chinese, English, French, German, Italian, Japanese, Korean, Portuguese, Spanish
Audible Notifications	Titration Cycle Complete, Maximum Titrant Volume, Data Log Full, Calibration Due, Maintenance Reminder
Updateable Firmware	Yes, using USB flash drive
Burette Sizes	10 mL, 20 mL (included), 50 mL
Burette Resolution	Advanced micro-step technology provides 25,600 micro-steps per motor revolution for smooth and precise burette positioning (2 million micro-steps over full burette stroke range)
Burette Dosing Accuracy	Meets ISO8655-3 requirements
Burette Functions	Automatic rinse cycles for flushing and discrete dispense volume with continuous option
Certifications	CE, TUV 3-in-1, FCC, EN/IEC 61326-1, IEC 61010, IP-51
Dimensions	10" x 16" x 14" (L x W x H); 25.4 cm x 40.6 cm x 35.6 cm (L x W x H)
Weight	12.5 lbs; 5.67 kg
Power Requirements	100 to 240 V, 50/60 Hz
Warranty	1 year





Expand the functionality of your Orion Star T940 All-in-one titrator with key accessories designed to help increase your lab productivity. Easy to install replacement parts minimize maintenance downtime and ensure your Orion Star T940 All-in-one titrator is ready for sample analysis.

- Pair the Orion Star T940 All-in-one titrator with any premium ROSS pH, Orion redox or ion selective electrodes or for a bundled discount, select a preconfigured titrator and electrode kit.
- The 8102BNUWP ROSS Ultra pH electrode and 927007MD stainless steel ATC temperature probe are ideal for most standard pH titrations and preset endpoint titrations that include temperature.
- The 8172BNWP ROSS Sure-Flow electrode is designed for challenging samples that can clog standard pH electrodes or that require a fast-flowing sleeve-type junction.

Ordering Information

Cat. No.	Description
START9400	Orion Star T940 All-in-one titrator, includes 20 mL burette, stirrer probe, dispenser probe, standard tubing kit, 1 L plastic bottle, GL38 bottle cap with drying tube, computer cable, literature on USB drive, 110-240 V power supplies
START9401	Orion Star T940 All-in-one titrator standard ROSS kit, includes 8102BNUWP ROSS Ultra pH electrode, 927007MD ATC probe, 20 mL burette, stirrer probe, dispenser probe, standard tubing kit, 1 L plastic bottle, GL38 bottle cap with drying tube, computer cable, literature on USB drive, 110-240 V power supplies
START9402	Orion Star T940 All-in-one titrator Sure-Flow ROSS kit, includes 8172BNWP ROSS Sure-Flow pH electrode, 927007MD ATC probe, 20 mL burette, stirrer probe, dispenser probe, standard tubing kit, 1 L plastic bottle, GL38 bottle cap with drying tube, computer cable, literature on USB drive, 110-240 V power supplies

Ordering Information

Cat. No.	Description
STARA-106	Orion compact ink ribbon printer, 100-240 V
START-B10	Orion Star T900 series 10 mL burette
START-B20	Orion Star T900 series 20 mL burette
START-B50	Orion Star T900 series 50 mL burette
START-TB1	Orion Star T900 series standard tubing kit
START-TB2	Orion Star T900 series light blocking tubing kit
START-TB4	Orion Star T900 series burette tubing
START-TB5	Orion Star T900 series reagent bottle tubing
START-TB6	Orion Star T900 series dispenser tubing
START-BT1	Orion Star T900 series 1 L plastic bottle
START-BT2	Orion Star T900 series 1 L glass amber bottle
START-BT3	Orion Star T900 series 1 L plastic bottles, 12 pack
START-BT4	Orion Star T900 series 1 L glass amber bottles, 12 pack
START-CP1	Orion Star T900 series GL38 reagent bottle cap
START-CP2	Orion Star T900 series GL45 reagent bottle cap
START-CP3	Orion Star T900 series cap for Orion 475 mL (pint) bottles
START-DS1	Orion Star T900 series dispenser probe
START-DVK	Orion Star T900 series dispense verification kit
START-B00	Orion Star T900 series burette cover
START-BT0	Orion Star T900 series reagent bottle holder
START-EH1	Orion Star T900 series electrode holder assembly
START-EH2	Orion Star T900 series stopper for electrode holder
START-EH3	Orion Star T900 series cable management accessory
START-PS1	Orion Star T900 series 110 V US/Japan power supply
START-PS2	Orion Star T900 series 220 V Euro power supply
START-PS3	Orion Star T900 series 240 V UK/Singapore power supply
START-PS4	Orion Star T900 series 230 V Australia/New Zealand power supply
START-PS5	Orion Star T900 series 220 V China power supply
START-TB3	Orion Star T900 series drying tube
START-UM1	Orion Star T900 series user manual on USB
START-USB	Orion Star T900 series USB computer cable
START-VK1	Orion Star T900 series valve replacement kit

Water and Lab Products

Australia: (613) 9757-4300 In Australia: (1300) 735-295 **China:** (86) 21-6865-4588
Germany: (49) 6184-90-6321 **India:** (91) 22-6716-2261/2247 **Japan:** (81) 045-453-9175
North America: 1-978-232-6000 Toll Free: 1-800-225-1480 **Singapore:** (65) 6778-6876

Find out more at thermofisher.com/T900titratorseries