Data Log

VERSA STAR meters offer a 2000 point data log. Each point includes measurements from one to four channels with the date and time. When the data log function is turned on in the Instrument Settings setup menu, the read type determines how the displayed measurements are saved to the data log.

1. In the measurement mode, press the *setup* key.
2. Press the ◄ or ► key to highlight Log View and press the *f3 (Select)* key.
3. Press the ◄ or ► key to highlight Data Log.
4. Press the ▲ or ▼ key to highlight View and press the *f3 (Select)* key.
5. Press the ▲ or ▼ key to highlight a point and press the *enter* key to view detailed data for that point. Press the ◄ or ► key to scroll through additional data log points.
6. Press the *measure (esc)* key to return to the measurement mode.

Calibration Log

The calibration log contains up to the ten most recent calibrations per pH, RmV, ORP, ISE, incremental technique, conductivity, DO and RDO parameter.

1. In the measurement mode, press the setup key.
2. Press the ◄ or ► key to highlight Log View and press the *f3 (Select)* key.
3. Press the ◄ or ► key to highlight Cal Log.
4. Press the ▲ or ▼ key to highlight the desired calibration parameter and press the *f3 (Select)* key.
5. Press the ▲ or ▼ key to view each calibration for the selected parameter.
6. Press the *measure (esc)* key to return to the measurement mode.

Water Analysis Instruments

North America
Toll Free: 1-800-225-1480
Tel: 1-978-232-6000
info.water@thermo.com

Netherlands
Tel: (31) 020-4936270
info.water.uk@thermo.com

Singapore
Tel: (65) 6778-6876
wai.asia@thermofisher.com

India
Tel: (91) 22-4157-8800
wai.asia@thermofisher.com

China
Tel: (86) 21-68654588
wai.asia@thermofisher.com

Japan
Tel: (81) 045-453-9175
wai.asia@thermofisher.com

Australia
Tel: (613) 9757-4300
in Australia (1300) 735-295
InfoWaterAU@thermofisher.com

Thermo SCIENTIFIC
A Thermo Fisher Scientific Brand

IS-68X591205-B 0514

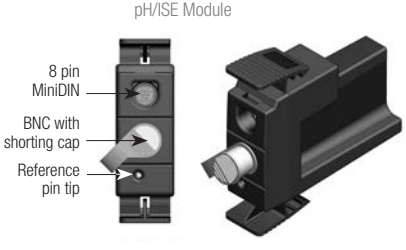
Thermo Scientific Orion

VERSA STAR pH/ISE/mV/RmV/ORP Temperature Module

This literature provides basic instructions on operating the Thermo Scientific™ Orion™ VERSA STAR™ meter when the VERSA STAR pH/ISE measurement module is installed. For comprehensive information on meter and module system setup, operation and advanced features, please refer to the VERSA STAR user manual available on the VERSA STAR literature CD or www.thermoscientific.com/water.

Preparation

1. Prepare the universal power adapter, install the meter-attached electrode stand and verify that the pH/ISE module is connected to the meter. If it is not connected, insert the module into an available channel on the back of the meter.
2. Prepare the electrodes as instructed in the electrode user manuals. For improved movement and control, place the electrodes into the electrode stand.
3. Connect the pH electrode or ion selective electrode (ISE) cable to the BNC input on the module and ATC probe cable to the 8 pin MiniDIN input on the module.



Thermo SCIENTIFIC

4. If using the Thermo Scientific™ Orion™ Star™ stirrer probe, attach the stirrer probe cable to the STIRRER 1 input (default input for channels 3 & 4) or STIRRER 2 input (default input for channels 1 & 2) on the meter.
5. Set up the work area with calibration buffers or standards, rinse water, samples and other supplies. For ISE analysis, prepare all required solutions (ionic strength adjusters, standards, etc) and review any special requirements outlined in the electrode manual.
6. If applicable, connect the meter to an external device using the appropriate cable. A USB cable is included with the meter for computer interfacing.
7. Power on the meter by connecting the universal power adapter to the meter and power outlet.

ISE Mode Setup Menu

Within the Channel 1, 2, 3 & 4 setup menus are Method, Mode and Temperature submenus, which can be used to customize measurement settings and parameters for the selected channel.

1. In the measurement mode, press the *setup* key.
2. Press the ◄ or ► key to highlight the appropriate Channel setup menu and press the *f3 (Select)* key.
3. Press the ◄ or ► key to highlight Mode and press the *f3 (Select)* key.
4. Press the ▲ or ▼ key to highlight ISE and press the *f3 (Select)* key.
5. View and update the displayed menu options.

ISE Setup Menu

Default values are in bold. The pH, mV, Relative mV and ORP menus are similar with options relevant to the mode. Electrode Type sets the expected slope range and direction during ISE calibrations. Select the appropriate ion or select X- for monovalent anion, X-- for divalent anion, X+ for monovalent cation and X++ for divalent cation.

Electrode SI No	**- - - - (no value)**
Electrode Type	Ag+ BF4- Br- Ca++ Cd++ Cl- Cl_2 ClO_4 CN- CO_2 Cu++ **F-** I- K+ KF Na+ NH_3 NO_3- NOx O_2 Pb++ REDOX S-- SCN- X- X-- X+ X++
Sample ID	**Off**, Manual, Auto Increment
Significant Digit	1 Digit, **2 Digit**, 3 Digit, 4 Digit
Stability	**Smart**, Fast, Medium, Slow
Averaging	Off, **Automatic Smart**
Read Type	**AutoRead**, Timed, Single-Shot, Continuous
Measurement Unit	**ppm**, Molar, mg/L, %,ppb, None
Isopotential Value	**Off**, **On**
Linear Regression	**Off**, On
Blank Correction	**Off**, On
Low Level Stability	**Off**, On
Alarm	Limit **(Off)**, CalDue **(Off)**, Set Point **(Off)**

pH and ISE Calibration

For ISE calibrations, start with the lowest concentration standard and work up to the highest concentration standard last.

1. In the measurement mode, press the *f1 (Cal)* key to start the calibration.
   a. When measuring more than one channel, press the ▲ or ▼ key to highlight the channel to be calibrated and press the *f3 (Select)* key.
2. Rinse all electrodes in use with distilled water or appropriate solution, blot dry with a lint-free tissue and place into the first calibration solution.
3. When the electrode and calibration solution are ready, press the *f3 (Start)* key.
   a. The stirrer probe will start stirring and continue until the reading stabilizes.
4. Wait for the value on the meter to stabilize and perform one of the following actions:
   a. Press the *f2 (Accept)* key to accept the displayed value, or
   b. Press the *f3 (Edit)* key and use the numeric keypad to enter a new value. Press the *f2 (Accept)* key to confirm the entered value.
5. Press the *f2 (Next)* key to proceed to the next calibration solution and repeat steps 2 through 4 or press the *f3 (Cal Done)* key to save and end the calibration.
   a. If a one point calibration is performed, press the *f3 (Slope Edit)* key, press the *f3 (Clear)* key, use the numeric keypad to enter the new slope value and press the *f2 (Accept)* key.
6. The meter will display the calibration summary including the slope and export the data to the calibration log. Press the *measure (esc)* key to proceed to the measurement mode.

Measurement

The read type selected for each channel will determine how measurements are displayed and saved (data log must be on in the Instrument Settings setup menu).

Auto-Read – Press the *measure (esc)* key to start a measurement. When the measurement is stable, the AR icon will stop flashing and the measurement will be locked on the display and saved to the data log. Press the *measure (esc)* key to take a new measurement.
Timed – Measurements are continuously updated on the display and saved to the data log at the pre-set time interval until the measurement mode is exited.
Single-Shot – Press the *measure (esc)* key to start a measurement. When the pre-set wait time is reached, the measurement is locked on the display and saved to the data log. Press the *measure (esc)* key to take a new measurement.
Continuous – Measurements are continuously updated on the display. Press the *log/print* key to save the measurement to the data log.

Press the *channel* key until the desired combination of measurement channels are shown.

1. Rinse the electrodes with distilled water or appropriate solution, blot dry with a lint-free tissue and place into the sample.
2. Start the measurement and wait for the reading to stabilize or reach the set time.
   a. When using the Auto-Read or Single-Shot read type, press the *measure (esc)* key to start the measurement and stirrer probe.
   b. When using the Timed or Continuous read type, measurements will start immediately; press the *stirrer* key to start and stop the stirrer probe.
3. Once the measurement is stable or reaches the set time, record all applicable parameters.
4. Remove the electrodes from the sample, rinse, dry and place into the next sample.
5. Repeat steps 2 through 4 for all samples. When all samples have been measured, store the electrodes as instructed in the electrode user manuals.

Example ISE Measurement – Single Channel Display