



Thermo Scientific Orion

Versa Star Pro Benchtop Electrochemistry Meter

General Information

This instruction sheet provides general information on operating the Thermo Scientific™ Orion™ Versa Star Pro™ meter when one or more Thermo Scientific™ Orion™ Versa Star™ measurement modules are installed. Orion Versa Star Pro meters offer four channels that can be configured in any combination through their modular design. Select measurement modules to measure pH, pH with LogR technology, ion concentration (ISE), conductivity and dissolved oxygen. Measurement modules are automatically recognized by the meter and can be added or removed from meter channels at any time.

Orion Versa Star Pro meters offer a new System Access feature for administrative and up to ten user accounts with custom access to various meter functions including data/time settings, meter setup, measurement setup, data log and calibration log. Use password protection to secure selected meter functions while leaving other functions accessible for all users – the new System Access feature allows you to customize meter access to meet your specific security and data reporting needs. The system access feature can easily be turned on or off as the needs of your lab change for the ultimate flexibility in operation and ease-of-use.

For comprehensive information on meter and module system setup, operation and advanced features, refer to the Orion Versa Star Pro meter user manual available on the Orion Versa Star Pro literature CD and www.thermoscientific.com/water.

Meter Preparation

Power Adapter

The universal power adapter (Catalog Number STARA-PWR) with US, EU, UK and China plug plates is included with the Orion Versa Star Pro meter. Use of other power adapters can damage the meter and void the warranty. The use of a surge protector or UPS is also recommended.

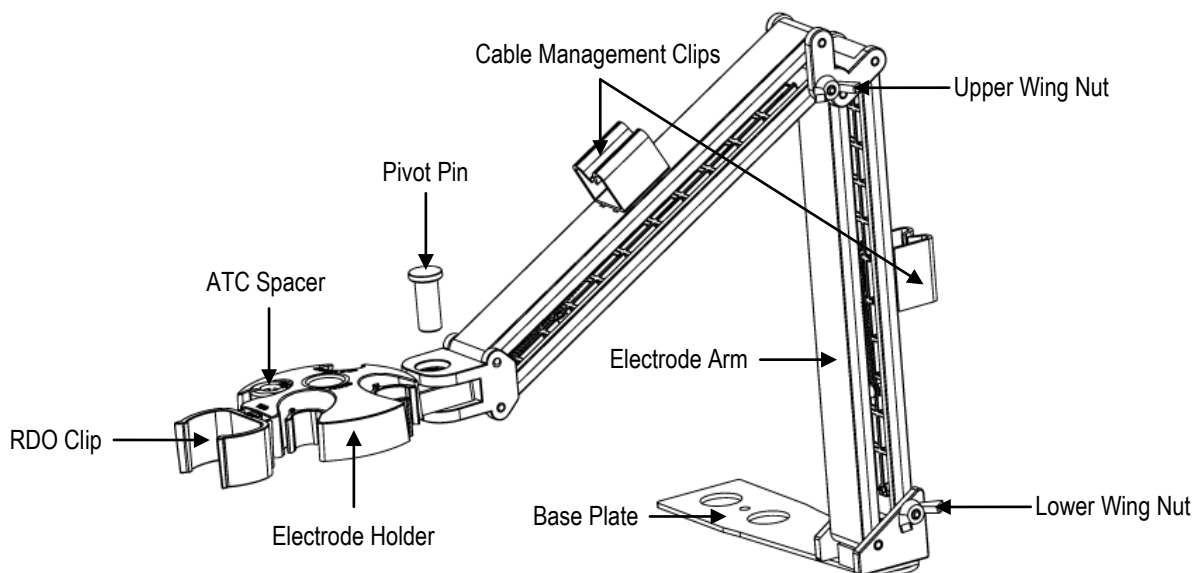


1. Select the appropriate plug plate for the power outlet.
2. Remove the clear plastic cover from the back of the power adapter.
3. Slide the plug plate into the groove on the back of the power adapter.
4. Connect the assembled power adapter to the outlet and meter input labeled POWER.

Electrode Stand

Use the benchtop meter-attachable stand to easily manage electrodes. The stand can be attached to either side of the meter and up to two stands can be attached to a meter. Alternatively, the stand can be used with the weighted base (Cat. No. STARA-HB).

1. Open the box containing the stand components (base plate, electrode arm, pivot pin, electrode holder, ATC spacer, RDO clip).
2. Turn the meter over, with the meter display facing down, on a clean dry surface.
3. Identify the side of the meter that the stand will be installed and remove the screw between circles on that side of the meter.
4. Align the base plate of the stand with the circles on the meter.
5. Replace the screw from step 3 to attach the base plate to the meter.
6. Turn the meter over, with the meter display facing up.
7. Insert the electrode arm into the metal post on the base plate.
8. Connect the electrode holder to the electrode arm using the pivot pin.
9. Once the stand has been assembled, use the two wing-nuts to adjust the tension at each joint to restrict the movement forward and backward using the lower wing-nut and upward and downward using the upper wing-nut.



Meter and Module System

Orion Versa Star Pro meters and Orion Versa Star modules can be purchased individually or as preconfigured systems with up to four modules already connected with the channels. Modules are labeled for easy identification. The pH, pH/ISE, Conductivity and RDO/DO modules each connect with one channel and the pH/LogR module connects with two channels. Unused channels are covered with blank modules. Modules can be moved among any of the four available channels as needed, whether the meter is powered on or off.

Module Measurement Capabilities

| Module Catalog Number | Label | Measurement Modes | Temperature Modes |
|-----------------------|---------|--|-------------------------|
| VSTAR-PH | pH | pH, mV, RmV, ORP | Automatic, Manual |
| VSTAR-ISE | pH/ISE | pH, mV, RmV, ORP, ISE | Automatic, Manual |
| VSTAR-LR | pH/LogR | pH, mV, RmV, ORP | Automatic, Manual, LogR |
| VSTAR-CND | Cond | Conductivity, TDS, Salinity, Resistivity | Automatic, Manual |
| VSTAR-RD | RDO/DO | % Saturation, mg/L | Automatic |

Module Insertion

1. Hold the top (labeled) and bottom tabs on the module with thumb and index finger and squeeze the tabs towards each other.
2. Slide the module straight into an open channel groove on the back of the meter. The tabs should snap into place when the module is fully connected to the meter.
3. Release the top and bottom tabs on the module.
4. The meter will update the channel ID display with the module ID in the corresponding channel location.



Module Removal

1. Hold the top (labeled) and bottom tabs on the module with thumb and index finger and squeeze the tabs towards each other.
2. Pull straight back to remove the module from channel groove on the back of the meter.
3. The meter will update the channel ID display with dashes in the previous channel location.

Meter Setup Menu

The Main Setup menu contains up to four channel-specific measurement menus, instrument settings menu, calibration and data log view menu, meter diagnostics menu and system access menu in one easy to access location.

1. In the measurement mode, press the **setup** key.



2. Press the ◀ or ▶ key to highlight the appropriate setup menu and press the **f3 (Select)** key.
3. View and update the displayed menu options.

Instrument Settings Setup Menu

Use the Instrument Settings setup menu to update meter settings for the display, sound, date and time, language, data transfer, stirrer speed and channel assignment, screen saver and auto-shutoff feature.

| Main Menu | Submenu | Settings |
|---------------|----------------|---|
| Display | Brightness | Level 1, Level 2, Level 3 , Level 4, Level 5 |
| | Display View | Channel <input checked="" type="checkbox"/> , Measurement Mode <input checked="" type="checkbox"/> , Method <input checked="" type="checkbox"/> , Stable <input checked="" type="checkbox"/> , Temperature <input checked="" type="checkbox"/> , Secondary Parameter <input checked="" type="checkbox"/> , Calibration Details <input checked="" type="checkbox"/> , Account ID <input checked="" type="checkbox"/> , Sample ID <input checked="" type="checkbox"/> , Electrode Serial No <input checked="" type="checkbox"/> |
| | Display Format | Channel 1 <input checked="" type="checkbox"/> , Channel 2 <input checked="" type="checkbox"/> , Channel 3 <input checked="" type="checkbox"/> , Channel 4 <input checked="" type="checkbox"/> , Channel 1 & 2 <input checked="" type="checkbox"/> , Channel 1 & 3 <input checked="" type="checkbox"/> , Channel 1 & 4 <input checked="" type="checkbox"/> , Channel 2 & 3 <input checked="" type="checkbox"/> , Channel 2 & 4 <input checked="" type="checkbox"/> , Channel 3 & 4 <input checked="" type="checkbox"/> , Channel 1 & 2 & 3 <input checked="" type="checkbox"/> , Channel 1 & 2 & 4 <input checked="" type="checkbox"/> , Channel 1 & 3 & 4 <input checked="" type="checkbox"/> , Channel 2 & 3 & 4 <input checked="" type="checkbox"/> , Channel 1 & 2 & 3 & 4 <input checked="" type="checkbox"/> |
| Communication | USB | |
| | RS232 | 1200, 2400, 4800, 9600 , 19200, 38400, 57600, 115200 |
| | USB Printer | |
| Buzzer | Key Press | Off, On |
| | Ready | Off , On |
| | Alarm | Off , On |
| Stirrer | Stirrer 1 | Channel 1 <input type="checkbox"/> , Channel 2 <input type="checkbox"/> , Channel 3 <input checked="" type="checkbox"/> , Channel 4 <input checked="" type="checkbox"/> Speed: 1, 2, 3 , 4, 5 |
| | Stirrer 2 | Channel 1 <input checked="" type="checkbox"/> , Channel 2 <input checked="" type="checkbox"/> , Channel 3 <input type="checkbox"/> , Channel 4 <input type="checkbox"/> Speed: 1, 2, 3 , 4, 5 |
| Calendar | Time | 12 Hrs , 24 Hrs |
| | Date | DD-MM-YY , MM-DD-YY, DD-MMM-YY |
| Language | | English , Spanish, German, Italian, French, Chinese, Portuguese, Korean |
| Data Log | | Off, On |
| Printing | | Off, On |
| Print Format | | CSV, Printer |
| Screen Saver | | Off, On |
| Auto Shut Off | | Off, On |

Data Transfer

If measurements will be saved to the data log and then transferred to a computer or printer, make sure the data log setting is on, the meter communication settings match the external device settings and the meter and external device are properly interfaced.

The Versa Star USB driver must be installed on the computer before the meter can communicate with the computer via USB.

Diagnostics Menu

Access the Diagnostics menu to initiate a meter reset, test electrode stability, perform a meter self test or view meter and module serial numbers and software revisions.

| Menu | Settings |
|----------------|--|
| Factory Reset | All meter settings are reset to factory defaults. Data log, calibration log and methods are deleted. Default password is 1111. |
| User Reset | All settings for the selected channel are reset to factory defaults. Data log, calibration log and methods are retained. |
| Stability Test | Tests the stability of a pH, ORP or ISE electrode by measuring the mV per minute drift and noise of the electrode. Only channels with a BNC input can be selected. |
| Self Test | Perform a keypad check, accuracy check (channels with BNC input only) and stirrer check (stirrer probe required). A self test is also performed automatically by the meter at each power up. |
| About Meter | Displays the meter and module software revisions and serial numbers. The meter and module serial numbers and software revisions will be different. |

System Access Feature

Use the new system access feature offered with Orion Versa Star Pro meters to assign an administrator and up to ten user accounts with custom access to meter functions. Assign each user account a full, advanced or basic predefined access level or select the custom access level to modify individual access to the meter functions listed below.

| Meter Access Options | Admin | Full | Advanced | Basic | Custom |
|-------------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|--|
| Create/Edit Accounts | <input checked="" type="checkbox"/> | --- | --- | --- | --- |
| Instrument Settings | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> / <input checked="" type="checkbox"/> |
| Data Log Delete | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> / <input checked="" type="checkbox"/> |
| Calibration Log Delete | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> / <input checked="" type="checkbox"/> |
| Diagnostics Menu | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> / <input checked="" type="checkbox"/> |
| Methods | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> / <input checked="" type="checkbox"/> |
| Temperature Settings | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> / <input checked="" type="checkbox"/> |
| Calibration Mode | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input type="checkbox"/> / <input checked="" type="checkbox"/> |
| Measure Mode & Settings | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> / <input type="checkbox"/> |
| Incremental Techniques | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> / <input type="checkbox"/> |
| Data Log View | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> / <input type="checkbox"/> |
| Data Log Print | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> / <input type="checkbox"/> |
| Cal Log View & Print | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> / <input type="checkbox"/> |
| Log/Print (Manual) | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> / <input type="checkbox"/> |
| Channel Display Option | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> / <input type="checkbox"/> |
| Sample ID | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> / <input type="checkbox"/> |

Enabling the System Access Feature

Note: Record all names and passwords in a safe location!

1. In the measurement mode, press the **setup** key.
2. Press the **▲**, **▼**, **◀** or **▶** key to highlight System Access and press the **f3 (Select)** key.
3. Press the **f3 (Admin)** key to proceed with setting up the administrator account.
4. Press the **▲** or **▼** key to highlight Admin Name and press the **f3 (Edit)** key. Use the alphanumeric keypad to enter one to nine characters for the system administrator name.

System Account

System Administrator Setup

| | |
|-----------------|-------------------------------|
| Admin Name | Admin |
| Password | |
| System Accounts | Create / Edit / Load Turn Off |

- Press ▲ / ▼ key to select option
- Press Edit (f3) key to enter name
- Press Save (f2) key to save

Esc Save Edit

System Account

System Administrator Setup

| | |
|-----------------|-------------------------------|
| Admin Name | ADMIN-123 |
| Password | |
| System Accounts | Create / Edit / Load Turn Off |

- Press ▲ / ▼ key to select option
- Press Edit (f3) key to enter name
- Press Save (f2) key to save

Done Enter Clear

- a. Press the **▲**, **▼**, **◀** or **▶** key to highlight a character, press the **f2 (Enter)** key to input the character and repeat until the desired name is entered. Press the **f3 (Clear)** key to delete any undesired characters.
 - b. Press the **f1 (Done)** key to save the entry.
5. Press the **▲** or **▼** key to highlight Password and press the **f3 (Edit)** key.
 6. Use the meter keypad to enter one to six numbers for the system administrator password and press the **f2 (Accept)** key.
 7. Press the **◀** or **▶** key to highlight Create/Edit/Load and press the **f3 (Select)** key.

System Account

System Administrator Setup

| | |
|-----------------|-------------------------------|
| Admin Name | ADMIN-123 |
| Password | 12345 |
| System Accounts | Create / Edit / Load Turn Off |

- Press ◀ or ▶ key to select option
- Press Select(f3) key to continue
- Press Save (f2) key to save

Esc Save Select

8. The list of accounts will be shown with the Admin account and ten available user accounts. Press the **▲** or **▼** key to highlight a new user account and press the **f3 (Edit)** key.

System Account

| Account Name | Last Access Date | Access Level |
|-------------------|------------------|--------------|
| ADMIN-123 (Admin) | 19-03-16 | Full |
| ----- | ----- | ----- |
| ----- | ----- | ----- |
| ----- | ----- | ----- |
| ----- | ----- | ----- |
| ----- | ----- | ----- |
| ----- | ----- | ----- |
| ----- | ----- | ----- |
| ----- | ----- | ----- |
| ----- | ----- | ----- |

- Press ▲ / ▼ key to select option

Back Load Edit

System Account

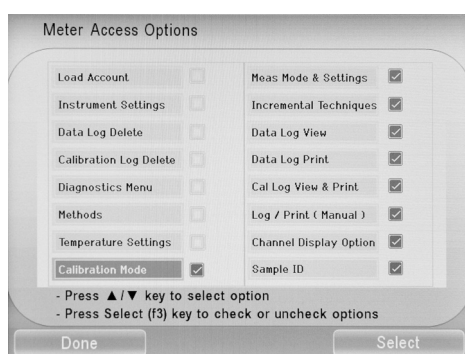
System Account Setup

| | |
|--------------|----------------------------|
| Account Name | |
| Password | |
| Access Level | Full Advanced Basic Custom |

- Press ▲ / ▼ key to select option
- Press Edit (f3) key to enter name
- Press Save (f2) key to save

Esc Save Edit

9. Press the ▲ or ▼ key to highlight Account Name and press the **f3 (Edit)** key. Use the alphanumeric keypad to enter one to nine characters for the user account name.
 - a. Press the ▲, ▼, ◀ or ▶ key to highlight a character, press the **f2 (Enter)** key to input the character and repeat until the desired name is entered. Press the **f3 (Clear)** key to delete any undesired characters.
 - b. Press the **f1 (Done)** key to save the entry.
10. Press the ▲ or ▼ key to highlight Password and press the **f3 (Edit)** key.
11. Use the meter keypad to enter one to six numbers for the user account password and press the **f2 (Accept)** key.
12. Press the ◀ or ▶ key to highlight the desired account access level of Full, Advanced, Basic or Custom.
 - a. If Full, Advanced or Basic is selected, press the **f2 (Save)** key and the meter will use the preset access level settings and return to the list of accounts.
 - b. If Custom is selected, press the **f3 (Select)** key and a new screen will open with a list of meter access options. The custom settings can be unique for each account.



- i. Press the ▲ or ▼ key to highlight an option and press the **f3 (Select)** key to allow access (checked box) or prevent access (unchecked box).
 - ii. Once all options have been set, press the **f1 (Done)** key. The custom settings will be saved for the account and the meter will return to the list of accounts.
13. Repeat steps 9-12 for all required user accounts.
14. When the administrator account is active, the admin can use the list of accounts to load and activate a different user account.
 - a. Press the ▲ or ▼ key to highlight the account and press the **f2 (Load)** key to activate the selected account.
 - i. Only accounts with a defined name, password and access level can be loaded.
 - b. Once the account is loaded, the meter will return to the measurement mode and the loaded, activated account name will be shown in the single measurement display.
 - c. The active account will only be able to access the meter functions defined by their account's access level setting (Full, Advanced, Basic or Custom).
 - d. The active account name will be saved with subsequent data log and calibration log records until the active account logs out or a new account logs in.
 - e. Only the system admin can create and edit up to ten user accounts with name, password and access level setting. The system admin can overwrite the name and password of existing user accounts, but accounts cannot be deleted.
 - f. Only the system administrator can turn off the System Access feature. Turning off the System Access feature will disable all system restrictions and erase all admin and user account names, passwords and access level settings.

Logging into an Existing User Account

1. In the measurement mode, press the **setup** key.
2. Press the **▲**, **▼**, **◀** or **▶** key to highlight System Access and press the **f3 (Select)** key.
3. Press the **f2 (Account)** key to access the list of existing accounts.
4. Press the **▲** or **▼** key to scroll through the account names until the desired name is shown and press the **f3 (Select)** key.



5. Use the meter keypad to enter the account password and press the **f2 (Load)** key.
6. Once the account is loaded, the meter will return to the measurement mode and the loaded, activated account name will be shown in the single measurement display.

Logging Out Of an Existing User Account

1. In the measurement mode, press the **setup** key.
2. Press the **▲**, **▼**, **◀** or **▶** key to highlight System Access and press the **f3 (Select)** key.
3. Press the **f1 (Logout)** key to log out of the active account.
4. The meter will prevent access to all meter access options until another account logs in.

Technical Support

For any questions or if you require assistance, contact our Technical Support Specialists:

- Email WLP.techsupport@thermofisher.com
- Within the United States, call **1-800-225-1480**
- Outside the United States, call **+1-978-232-6000**

For additional product information, contact your local authorized dealer, local Thermo Scientific Orion technical sales representative or contact us using the Water and Laboratory Products (WLP) information below.

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