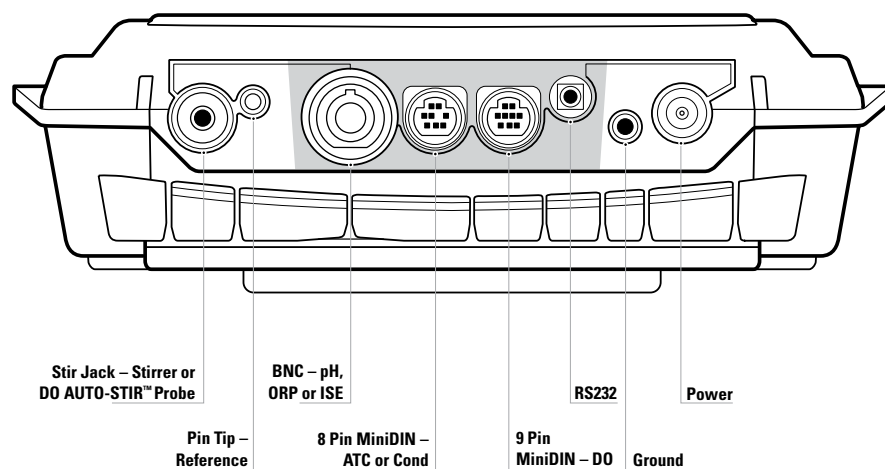


Key Description

| | | | | | | | |
|--|------------------|--|-------------------|--|--------------------|--|------------------------------------|
| | power | | up arrow | | line select | | stir (benchtop meters only) |
| | calibrate | | down arrow | | setup | | |
| | measure | | digit | | view log | | |

Meter Connections



All connectors on the 5-Star Plus benchtop meter are depicted above. All connectors on the 5-Star Plus portable meter are highlighted in gray.

The 3-Star Plus and 4-Star Plus meters will have fewer connectors. For example, the 3-Star Plus portable pH meter will only have BNC, 8 pin MiniDIN (for ATC probe only) and RS232 connectors.

For the complete Orion Star™ and Star Plus meter user guide, visit www.thermo.com/water.

English

pH

Thermo Scientific
Orion Star™ Plus pH Meter

Quick Start Guide

Preparation

1. Power adapter (benchtop meters only) – Select the appropriate wall outlet plug and slide the plug plate into the groove on the back of the adapter. **See A.**

Batteries – Select four AA alkaline batteries. Confirm that the meter is off and remove the battery cover. Orient and insert the batteries as depicted in the battery compartment housing. Replace the cover. **See B and C.**

2. Prepare the electrode according to the directions in the electrode user guide. In general, these steps include:

- Gently remove the protective cap, sleeve or storage bottle from the electrode and save it for electrode storage.
- If the electrode is refillable, remove the fill hole cover and fill the electrode with the appropriate electrode filling solution.
- Soak the electrode in pH electrode storage solution, Cat. No. 910001, or ROSS® pH electrode storage solution, Cat. No. 810001. **See D.**

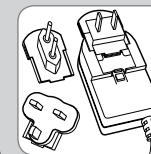
3. Meter connections – Connect the power adapter to the meter and then to the wall outlet (benchtop meters only). **See E.** Connect the pH electrode to the BNC input on the meter. **See F.** Connect the ATC probe to the 8 pin miniDIN input on the meter. **See G.** Connect the stirrer probe to the stir jack input on the meter (benchtop meters only). **See H.**

Note: All unused inputs on the meter should be covered with the black caps.

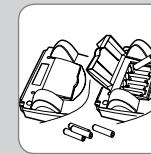
Meter Overview

1. To power on the meter, press the **power** key.
2. Press the **line select** key to choose the top, middle or bottom display line. The ► icon will point to the selected line.
3. In the measurement mode, press the **up arrow** or **down arrow** key to change the measurement units on the top display line to pH, mV, RmV, temperature (no icon) or a blank line.
4. To escape out of any meter function, press and hold the **measure** key until the meter returns to the measurement mode.
5. The 3-Star Plus, 4-Star Plus and 5-Star Plus pH meters can be calibrated using one to five pH buffers.

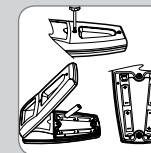
A



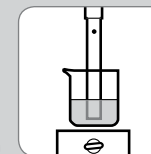
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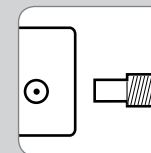
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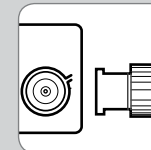
D



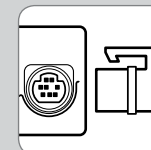
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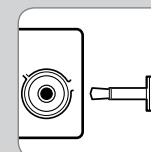
F



G



H



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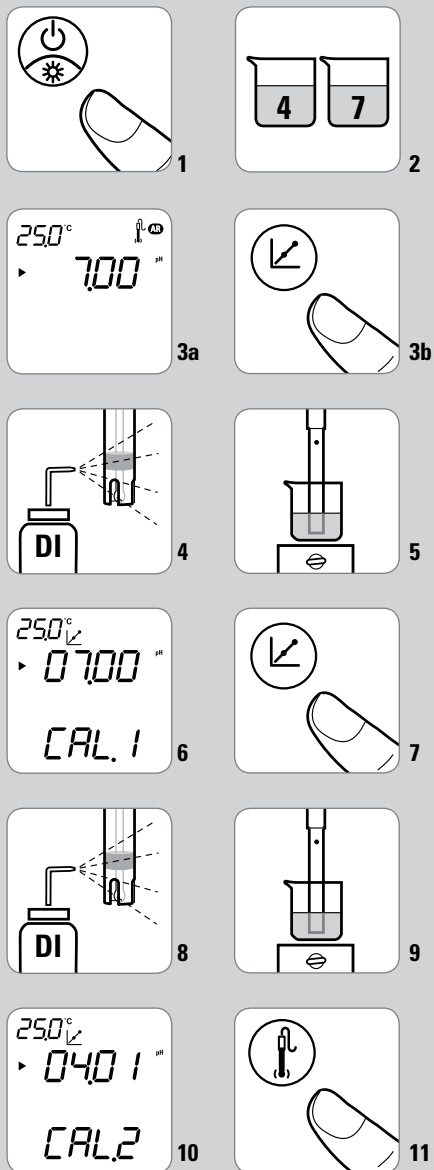
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pH Automatic Calibration with Two Buffers

1. Press the **power** key to turn on the meter. **See 1.**
2. Select two buffers that bracket the expected sample pH and are one to four pH units apart. **See 2.** See the **Automatic Buffer Recognition Selection** section for the buffer sets that are automatically recognized by the meter.
3. In the measurement mode, press the **line select** key until the ► icon points to the top line and press the **up arrow** key until the **pH** icon is shown. **See 3a.** Press the **calibrate** key to begin the calibration. **See 3b.**
4. Rinse the electrode (and ATC probe and stirrer probe, if in use) with distilled water and blot dry with a lint-free tissue. **See 4.**
5. Insert the electrode into the first buffer and gently stir. **See 5.** If the stirrer probe is in use, press the **stir** key to start and stop stirring (benchtop models only).
6. Wait for the **pH** icon to stop flashing and the ► icon to start flashing. The meter should display the temperature-corrected pH buffer value. **See 6.**
If the displayed buffer value is incorrect or a custom buffer is being used, press the **digit** key until the first digit to be changed is flashing, press the **up/down arrow** keys to change the value of the flashing digit and continue to change the digits until the meter displays the temperature-corrected pH buffer value. Once the buffer value is set, press the **digit** key until the decimal point is in the correct location.
7. Press the **calibrate** key to proceed to the next calibration point. **See 7.**
8. Rinse the electrode (and ATC probe and stirrer probe, if in use) with distilled water and blot dry with a lint-free tissue. **See 8.**
9. Insert the electrode into the second buffer and gently stir. **See 9.** If the stirrer probe is in use, press the **stir** key to start and stop stirring.
10. Wait for the **pH** icon to stop flashing and the ► icon to start flashing. The meter should display the temperature corrected pH buffer value. **See 10.**
11. Press the **measure** key to save and end the calibration. **See 11.** The slope will be displayed and the meter will proceed to the measurement mode.

Automatic Buffer Recognition Selection

1. In the measurement mode, press the **setup** key.
2. Press the **up arrow** key until **PH** is displayed on the top line.
3. Press the **line select** key to move the ► icon to the middle line. Press the **up arrow** key until **bUF** is displayed on the middle line.
4. Press the **line select** key to move the ► icon to the bottom line. Press the **up arrow** key to select **USA** for the pH 1.68, 4.01, 7.00, 10.01 and 12.46 buffer set or **EUr0** for the pH 1.68, 4.01, 6.86 and 9.18 buffer set. USA is the default setting.
5. Press the **line select** key to move the ► icon to the top line and press the **measure** key.

Measurement Mode Selection

1. In the measurement mode, press the **setup** key.
2. Press the **up arrow** key until **rEAd** is displayed on the top line.
3. Press the **line select** key to move the ► icon to the middle line. Press the **up arrow** key until **TYPE** is displayed on the middle line.
4. Press the **line select** key to move the ► icon to the bottom line. Press the **up arrow** key to select **AUt0** for the AUTO-READ™ mode, **tmE** for the timed mode or **COnt** for the continuous mode. AUt0 is the default setting.
5. Press the **line select** key to move the ► icon to the top line and press the **measure** key.

Automatic Datalog Feature

1. In the measurement mode, press the **setup** key.
2. Press the **up arrow** key until **LOg** is displayed on the top line.
3. Press the **line select** key to move the ► icon to the middle line. Press the **up arrow** key until **AUt0** is displayed on the middle line.
4. Press the **line select** key to move the ► icon to the bottom line. Press the **up arrow** key to select **OFF** or **On**. OFF is the default setting.
5. Press the **line select** key to move the ► icon to the top line and press the **measure** key.

pH Measurements

Turn on the automatic datalog feature to send measurements to the meter datalog or connect the meter to a printer or computer.

1. Rinse the electrode (and ATC probe and stirrer probe, if in use) with distilled water, blot dry with a lint-free tissue and insert into the sample.
2. If the meter is in the AUTO-READ mode, press the **measure** key to start a reading. Once the reading is stable, the **AR** icon will stop flashing and the display will freeze. Press the **measure** key to take a new measurement. If the stirrer probe is in use, it will start stirring when the **measure** key is pressed and stop stirring when the **AR** icon stops flashing (benchtop meters only).

If the meter is in the continuous or timed mode, the meter will immediately start taking readings and continuously update the display. Once the reading is stable, the **pH** icon will stop flashing. If the stirrer probe is in use, press the **stir** key to start and stop stirring (benchtop meters only).

3. Remove the electrode (and ATC probe and stirrer probe, if in use) from the sample, rinse with distilled water, blot dry with a lint-free tissue, insert into the next sample and repeat step 2 or see the electrode user guide for recommended storage.

Printing Data

If the automatic datalog feature is on, the meter will log a measurement every time the **measure** key is pressed (AUTO-READ and continuous modes) or the meter will log the measurement at the preset time interval (timed mode).

1. Connect the meter to a printer or computer and verify the baud rate and output settings in the meter setup menu.
2. In the measurement mode, press the **log view** key.
3. Press the **up arrow** key to select **SEnd** to print the datalog or **CALs** to print the calibration log.
4. Press the **log view** key to send the selected data to the printer or computer.