

English

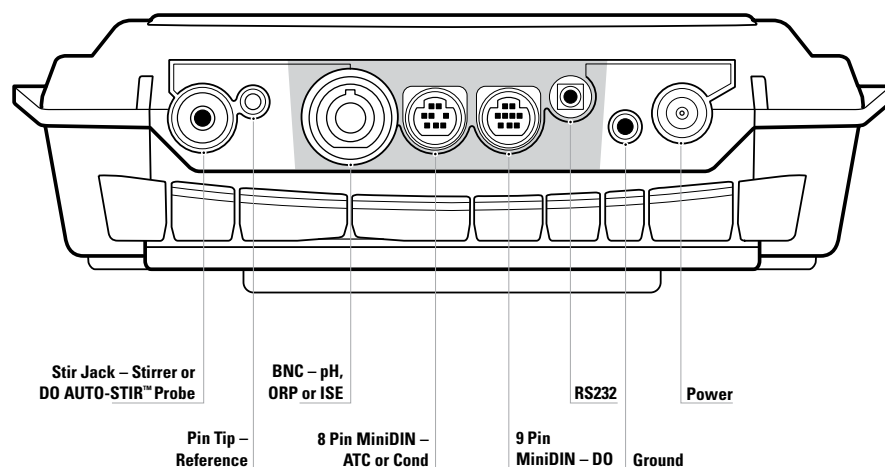
# Thermo Scientific Orion Star™ Plus Conductivity Meter

## Cond Quick Start Guide

### Key Description

	<b>power</b>		<b>up arrow</b>		<b>line select</b>		<b>stir</b> (benchtop meters only)
	<b>calibrate</b>		<b>down arrow</b>		<b>setup</b>		
	<b>measure</b>		<b>digit</b>		<b>view log</b>		

### 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 conductivity meter will only have 8 pin miniDIN and RS232 connectors.

For the complete Orion Star™ and Star Plus meter user guide, visit [www.thermo.com/water](http://www.thermo.com/water).

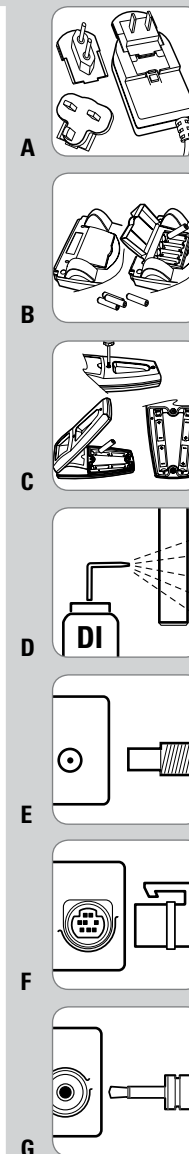
### Preparation

- 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.**
- Prepare the conductivity probe according to the directions in the conductivity probe user guide. In general, this includes rinsing the cell with deionized water. **See D.**
- Meter connections – Connect the power adapter to the meter and then to the wall outlet (benchtop meters only). **See E.** Connect the conductivity probe to the 8 pin miniDIN input on the meter. **See F.** Connect the stirrer probe to the stir jack input on the meter (benchtop meters only). **See G.**

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

### Meter Overview

- To power on the meter, press the **power** key.
- Press the **line select** key to choose the top, middle or bottom display line. The ► icon will point to the selected line.
- In the measurement mode, press the **up arrow** or **down arrow** key to change the measurement units on the middle display line to conductivity ( $\mu\text{S}/\text{cm}$  or  $\text{mS}/\text{cm}$ ), total dissolved solids (mg/L), salinity (ppt), resistivity ( $\text{M}\Omega\text{-cm}$ ), temperature (no icon) or a blank line.
- To escape out of any meter function, press and hold the **measure** key until the meter returns to the measurement mode.
- The 3-Star Plus, 4-Star Plus and 5-Star Plus conductivity meters can perform a one point manual calibration, up to a three point automatic calibration or up to a five point direct calibration.



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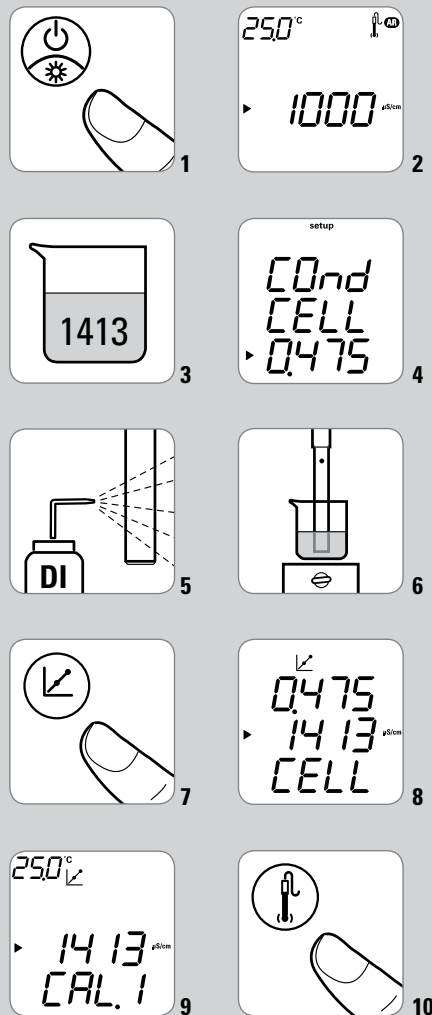
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## Conductivity Automatic Calibration with One Standard

1. Press the **power** key to turn on the meter. **See 1.**
2. In the measurement mode, press the **line select** key until the ► icon points to the middle line and press the **up arrow** key until the **µS/cm** or **mS/cm** icon is shown. **See 2.**
3. Select the Thermo Scientific Orion conductivity standard (100 µS/cm, 1413 µS/cm or 12.9 mS/cm) that has the closest conductivity to the expected sample value. **See 3.**
4. In the setup mode, enter the nominal cell constant value for the conductivity probe. See the **Nominal Cell Constant Selection** section. **See 4.** The meter will use the nominal cell constant value to recognize the conductivity standard during an automatic calibration.
5. Rinse the conductivity probe (and stirrer probe, if in use) with deionized water and blot dry with a lint-free tissue. **See 5.**
6. Insert the conductivity probe into the conductivity standard and gently stir. **See 6.** If the stirrer probe is in use, press the **stir** key to start and stop stirring (benchtop models only).
7. Press the **calibrate** key. **See 7.**
8. The meter will show the manual calibration display for about five seconds. **See 8.** Do not press any keys.
9. After about five seconds, the meter will proceed to the direct and automatic calibration display. Wait for the **µS/cm** or **mS/cm** icon to stop flashing and the ► icon to start flashing. The meter should display the conductivity standard value at 25 °C. **See 9.**
10. Press the **measure** key to save and end the calibration. **See 10.** The calculated cell constant will be displayed and the meter will proceed to the measurement mode.

## Nominal Cell Constant Selection

1. In the measurement mode, press the **setup** key.
2. Press the **up arrow** key until **C0nd** 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 **CELL** is displayed on the middle line.
4. Press the **line select** key to move the ► icon to the bottom line. To enter the nominal cell constant, 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 correct value. Once the value is set, press the **digit** key until the decimal point is in the correct location. 0.475 cm<sup>-1</sup> is the default setting.
5. Press the **line select** key to move the ► icon to the top line and press the **measure** key.

## Reference Temperature Selection

1. In the measurement mode, press the **setup** key.
2. Press the **up arrow** key until **C0nd** 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 **trEF** 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 **5 °C**, **10 °C**, **15 °C**, **20 °C** or **25 °C** as the reference temperature. 25 °C 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 **L0g** 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 **AUto** 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.

## Conductivity Measurements

AUTO-READ™ is the default measurement mode. Continuous or timed measurement modes can be selected in the meter setup menu.

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 conductivity 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 **µS/cm** or **mS/cm** 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 conductivity 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 probe 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.