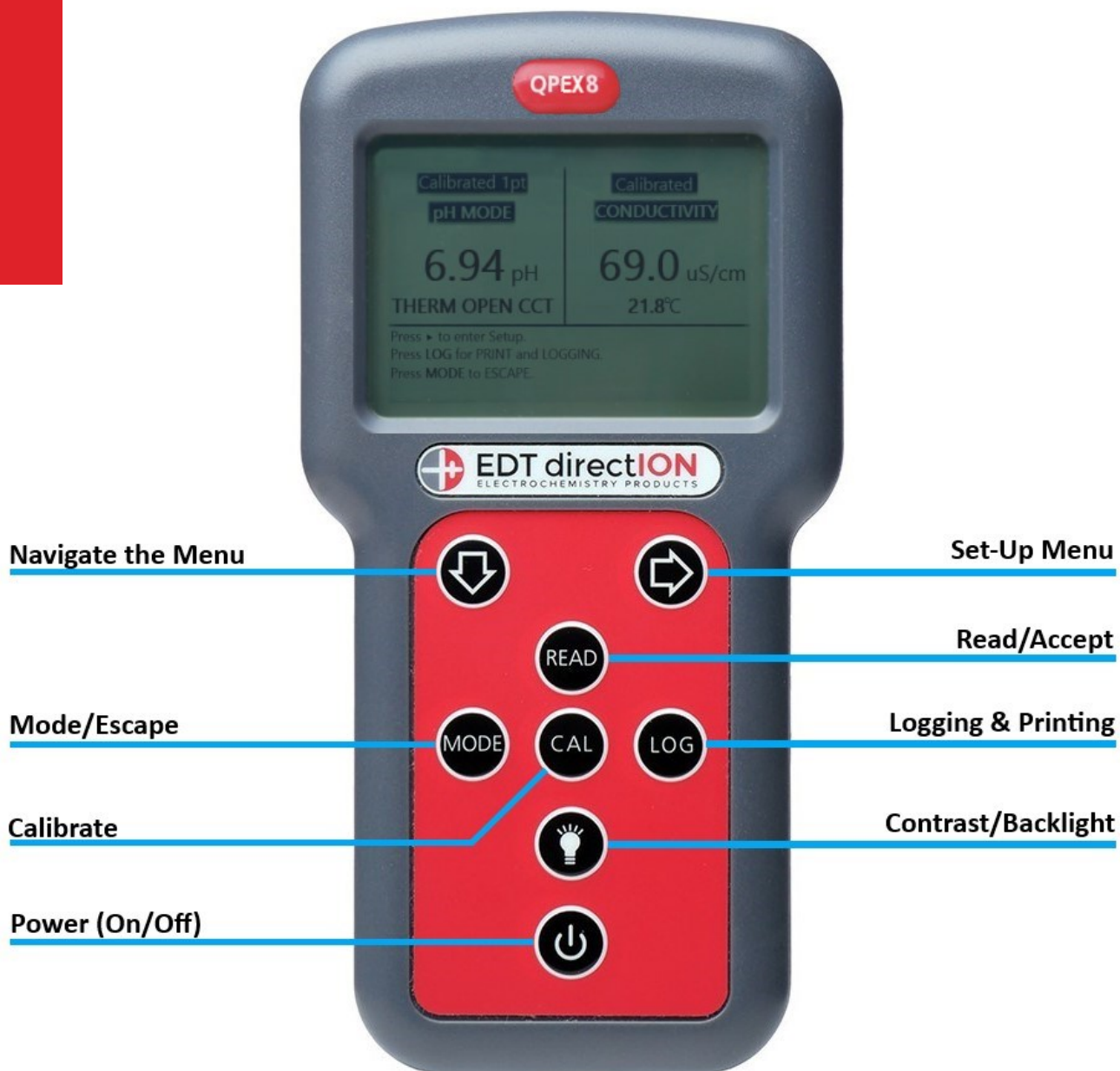


Series 4 Portable Multi-Parameter Meter Manual



QPEX8

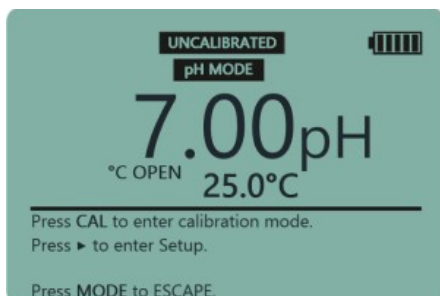


pH MODE:

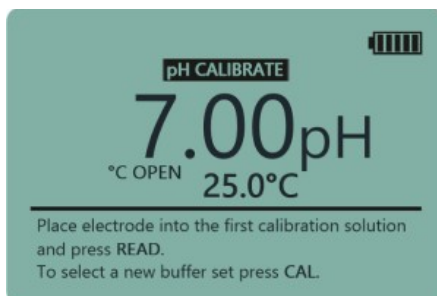
Accurate pH measurement requires that you do not cross contaminate buffers and samples. Before using the pH probe ensure it is rinsed with deionised water and blotted dry. Repeat this procedure when transferring between all standards and samples.

Connect the pH Electrode to the BNC connector on the top rear of the instrument.

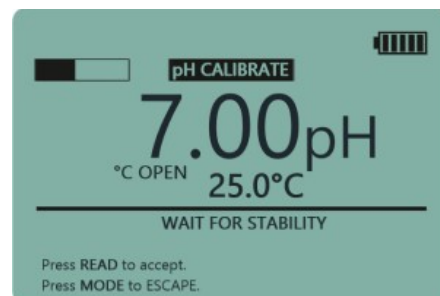
Connect the ATC probe Jack into the 3.5 mm Jack socket next to the BNC socket.



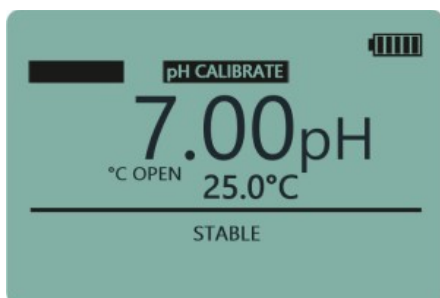
Switch on the meter and press **MODE** until you are in pH Mode.



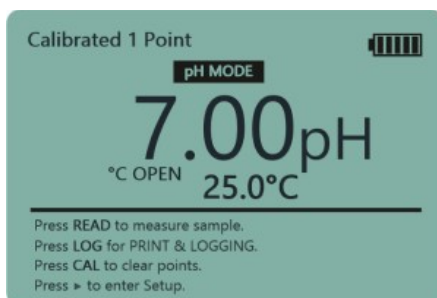
Press **CAL** to start a calibration.



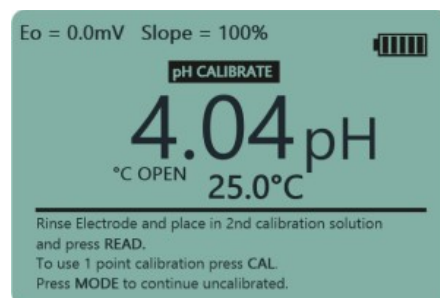
Insert the pH Probe and ATC Electrode into the pH7 Buffer Solution and press **READ**.



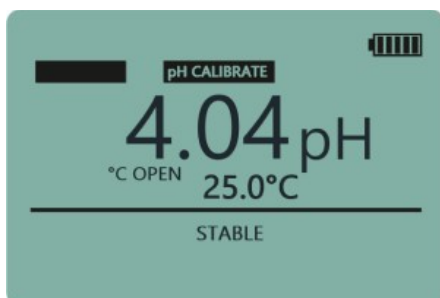
When stable the meter will set itself to pH7 (or the corrected value).



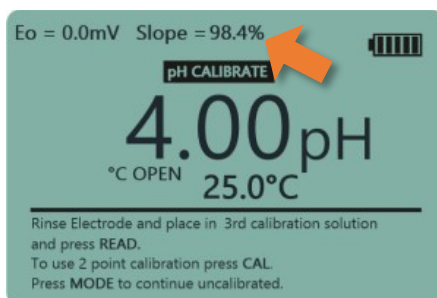
For a 1-point calibration press **CAL**.
(We recommend a 2-point calibration)



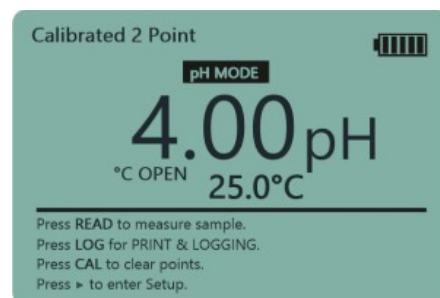
For a 2-point calibration, rinse the electrodes with DI water and blot dry. Then place them in the pH4 Buffer.



Press **READ** and when stable the meter will set itself to pH4.



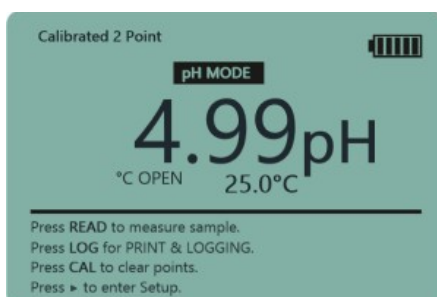
To accept the calibration, check the slope is over 80% and press **CAL**.



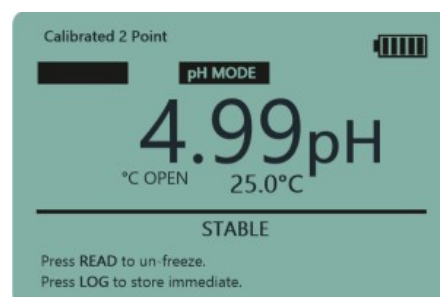
You are now in calibrated pH Mode and ready to take sample readings.

For a 3 point calibration, instead of pressing CAL to accept the calibration, you may repeat the steps above using the pH10 Buffer solution.

To take a sample measurement rinse the pH Probe and ATC Electrode with de-ionised water and then blot dry.



Place the electrode into the sample solution and then press **READ**.



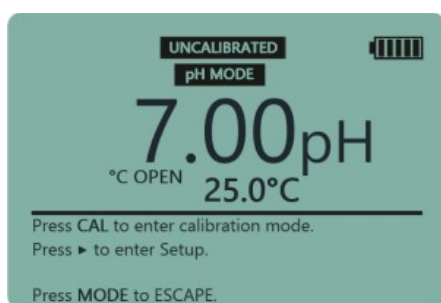
The auto-endpoint will freeze the display when the reading is stable.

USING DIFFERENT OR CUSTOM BUFFER SOLUTIONS:

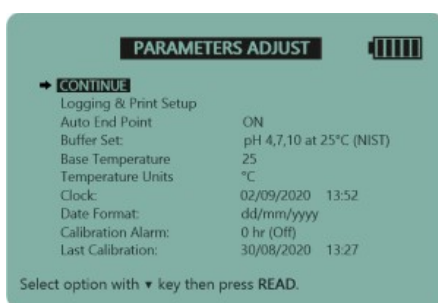
The QPEX8 comes complete with pH 4 and pH 7 Buffer Capsules.

These buffers are automatically set up in the menu (as is pH 10 Buffer).

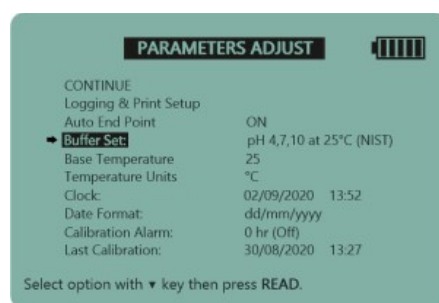
The reference temperature for these buffers is 25 Degrees C. For 20 Degrees C buffers or custom values you will need to enter the Set Up Menu:



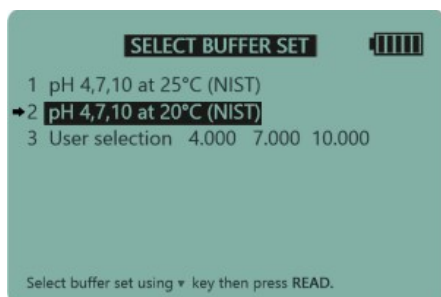
Switch on the meter and press **MODE** until you are in pH Mode.



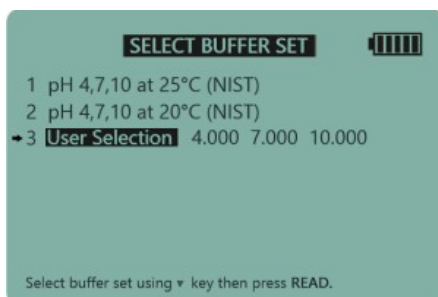
Press the **right arrow** key to enter the Parameters adjust screen.



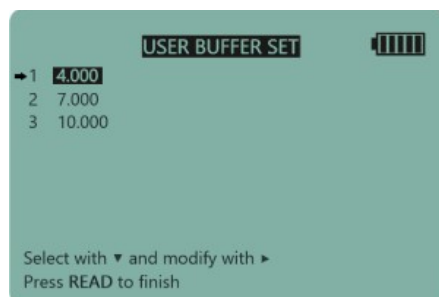
Scroll down to Buffer Set and press **READ**.



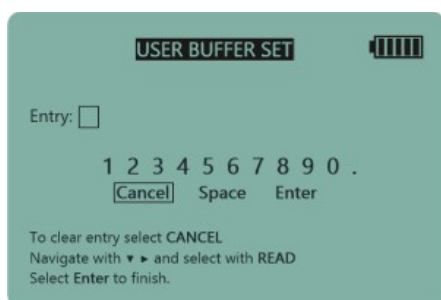
Select option 2 for pH 4,7 & 10 Buffers at 20° C.



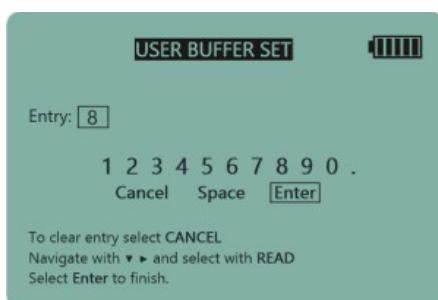
Or to input custom buffer solutions, select option 3 and press **READ**.



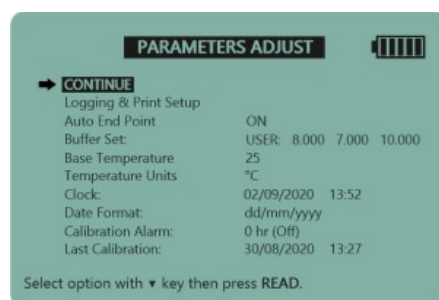
Select the buffer you wish to change and press the **right arrow** to modify.



Remove the current entry by selecting **CANCEL** and pressing **READ**.



Input the value you wish to use and select **ENTER** and press **READ**.



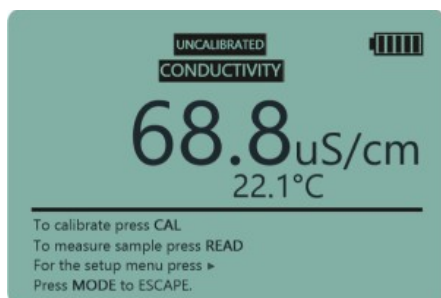
Press **READ** to return to the Parameters Adjust screen and then **READ** again to return to pH Mode.

pH Mode is now setup to use the Custom Buffer Set.

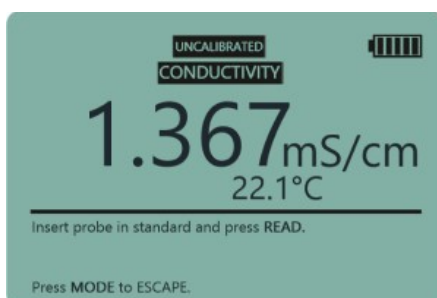
CONDUCTIVITY MODE:

Accurate conductivity measurement requires that you do not cross contaminate standards and samples.

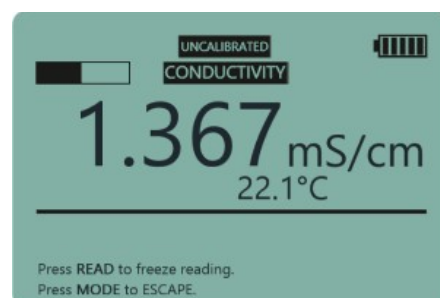
Before using the Conductivity probe ensure it is rinsed with deionised water and blotted dry. Repeat this procedure when transferring between all standards and samples.



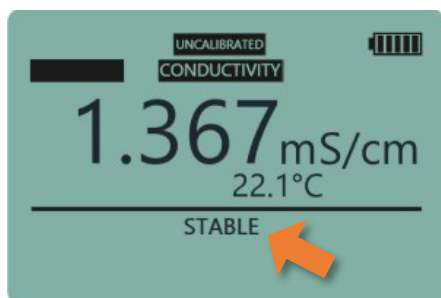
Switch on the meter and press **MODE** until you are in Conductivity Mode.



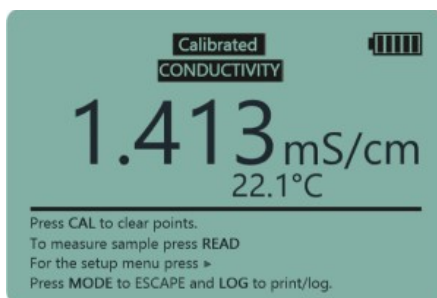
Press **CAL** to start a calibration.



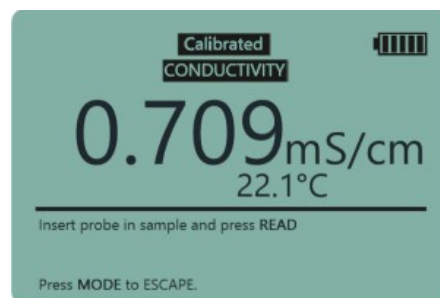
Insert the probe into the solution (swirl if required) and press **READ**.



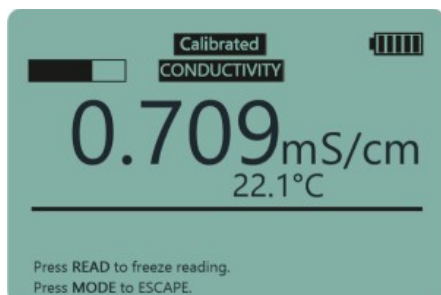
When stable the meter will set itself to the calibration value.



Remove the cell from the solution. Rinse with de-ionised water and blot dry.



To measure a sample, press **READ** and then insert the probe into the sample.



Once the probe is in the sample press **READ**.



The auto end-point will freeze the display when it is stable.

Please note:

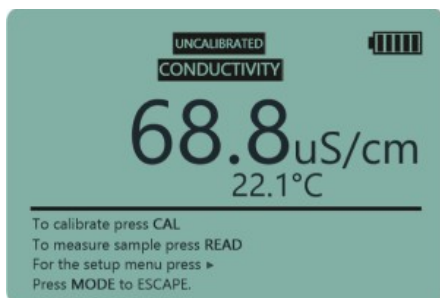
Total Dissolved Solids Mode is available and operates in the same way as conductivity mode. The only difference is that you are required to input a TDS Factor in the Adjust Parameters Settings. The TDS result will be output in mg/L.

USING DIFFERENT CALIBRATION STANDARDS:

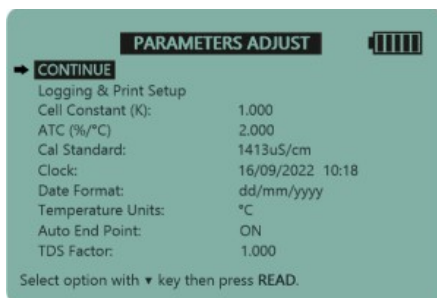
The **QPEX8** comes complete with a **1413uS/cm** standard solution.

This standard is automatically set up in the menu.

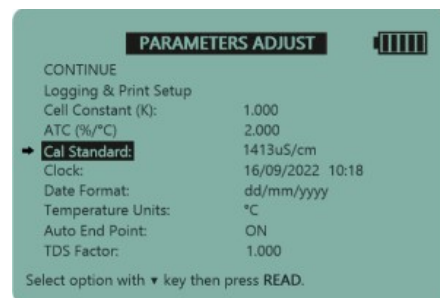
To use a **12.88mS/cm** standard do the following:



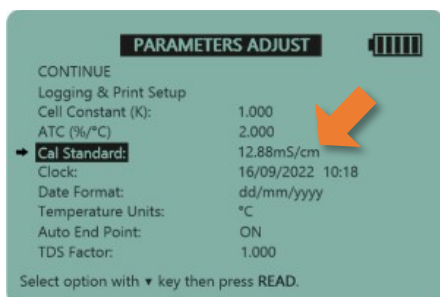
Switch on the meter and press **MODE** until you are in Conductivity Mode.



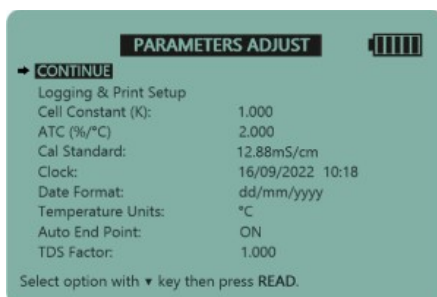
Press the **right arrow** key to enter the Parameters adjust screen.



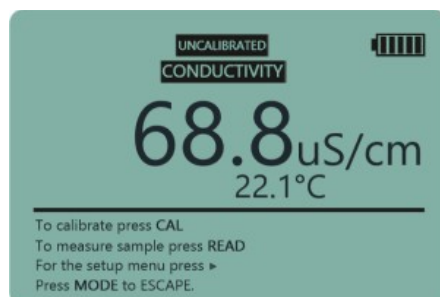
Scroll down to Cal Standard and press **READ**.



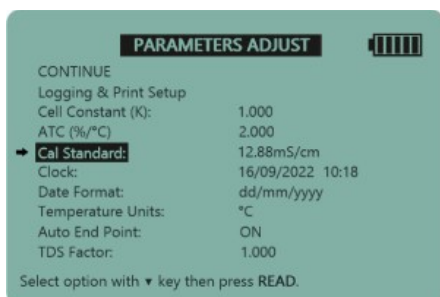
The instrument now selects the 12.88mS/cm Standard.



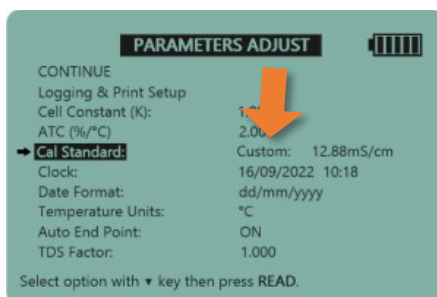
Scroll back up to CONTINUE and press **READ**.



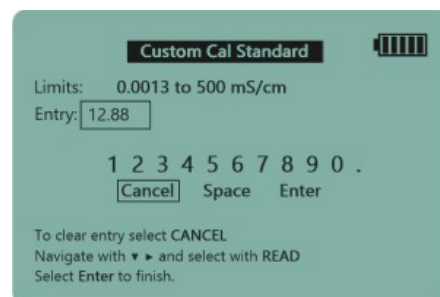
Calibrate as above but using the 12.88mS/cm Standard Solution.



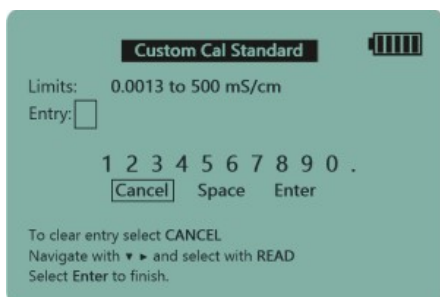
To select a different standard, scroll down to Cal Standard in setup.



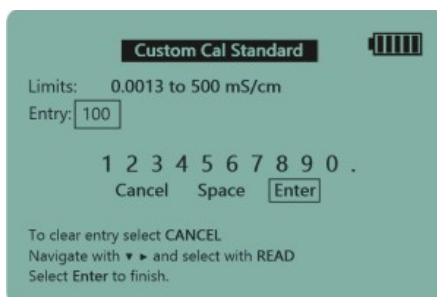
Press **READ** until the 'Custom Standard' option appears.



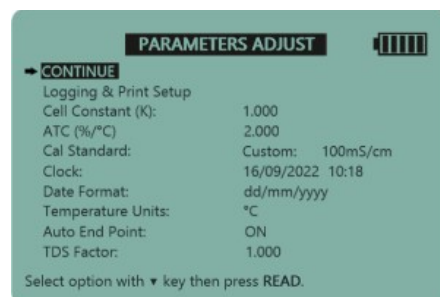
Then press the **right arrow** key to enter the Custom Cal Standard screen.



Remove the current entry by selecting **CANCEL** and pressing **READ**.



Input the custom value then select **ENTER** and press **READ**.



Scroll to CONTINUE and press **READ**. You may now calibrate.

USING CONDUCTIVITY CELLS WITH DIFFERENT CELL CONSTANTS (K-VALUES):

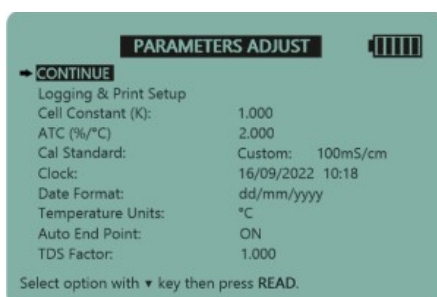
The instrument default is set at K=1.

The actual cell constant is calculated during calibration however some applications require the input of a cell constant as the calibration. The most common cell constants for specialist applications are K=0.1 and K=10.

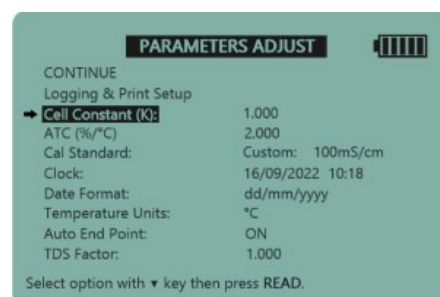
To set a cell constant:



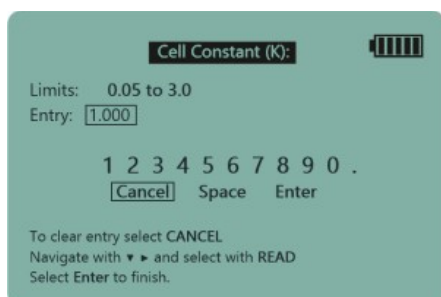
Press **MODE** until you are in Conductivity Mode.



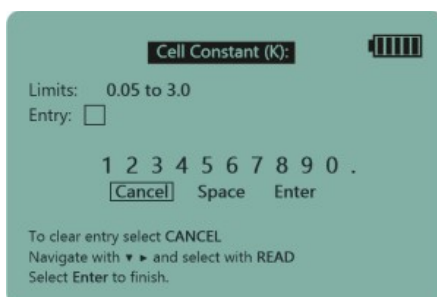
Press the **right arrow** key to enter the Parameters adjust screen.



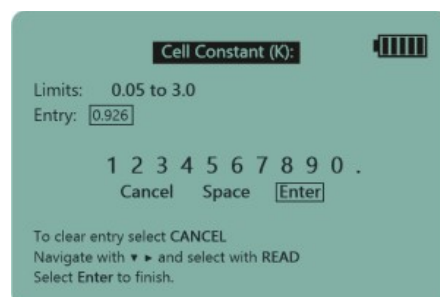
Scroll down to Cell Constant and press **READ**.



You are now in the Cell Constant Screen.



Select CANCEL and press **READ** to clear the current entry.



Input the custom Cell Constant. Select **ENTER** and press **READ**.

You have now entered the custom Cell Constant. Select **CONTINUE** and press **READ** to return to Conductivity Mode. You may now carry out a calibration or take on sample readings.

ION MODE:

The Measurement of Ion concentration is very similar to the measurement of pH. You will need to calibrate the Ion Selective Electrode (ISE). For approximate indications of concentration, you can perform a 1-Point calibration. In this case the QPEX8 will automatically apply the theoretical slope for that ION and enable analysis across the entire range.

For greater accuracy you can perform a 2-point calibration which should ideally span the expected sample concentration. In this case the QPEX8 will apply the actual slope of the ISE.

Finally, if you have a wide variety of sample concentrations and require good accuracy across the range you can perform a three point calibration. The QPEX8 will apply the actual slope to each segment of the calibration curve.

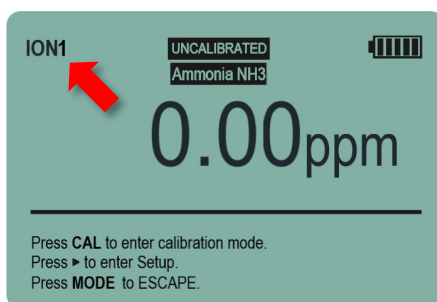
There are two identical Ion concentration Modes. When you switch modes to analyse a different species the calibration of the first mode is retained meaning that, once reconnected, the first ISE will still be calibrated. You can therefore rapidly analyse two different species and pH in the same sample without the need for further calibration.

CALIBRATION:

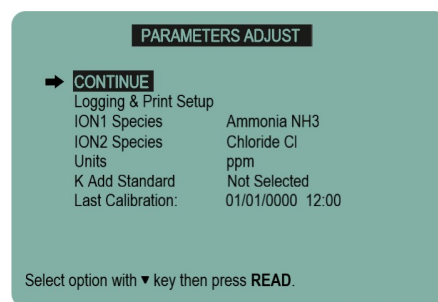
The QPEX8 has a dynamic screen with full instructions provide on the display. Below is a guide to performing a simple calibration.



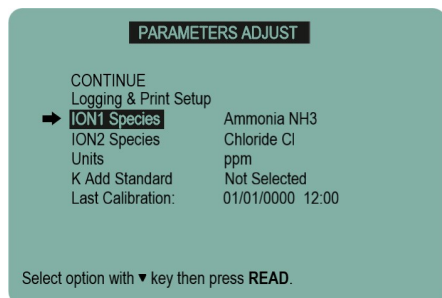
Switch on the unit using the **power button**.



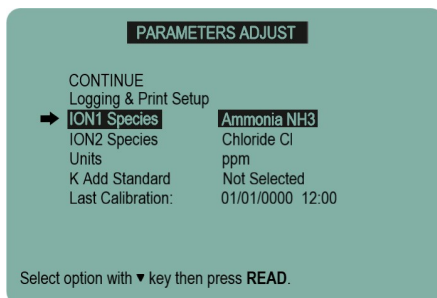
Press **MODE** until ION1 is displayed in the top-left hand corner of the display.



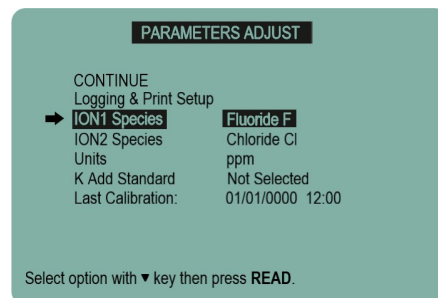
Press the **right arrow** to enter 'set up'.



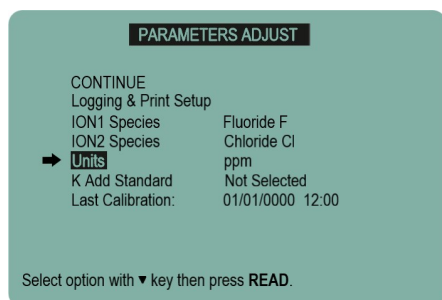
Press the **down arrow** and select the ION1 Species tab.



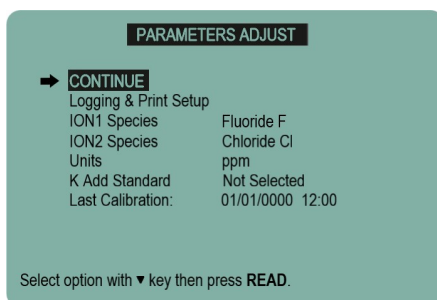
Press **READ** to highlight the individual ION species.



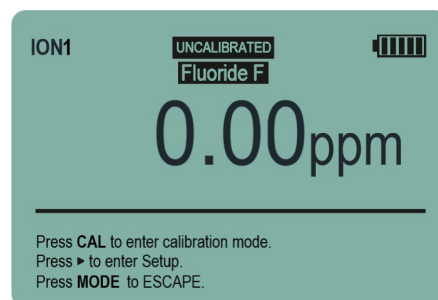
Press the **down arrow** until you reach the species required and press **READ**.



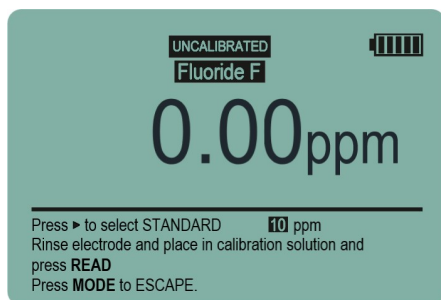
Press the **down arrow** to select 'Units' and press **READ** to select either ppm or mol/l.



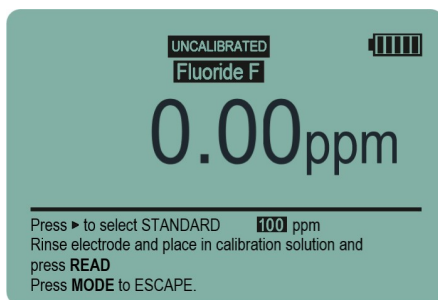
Press the **down arrow** until CONTINUE is highlighted then press **READ**.



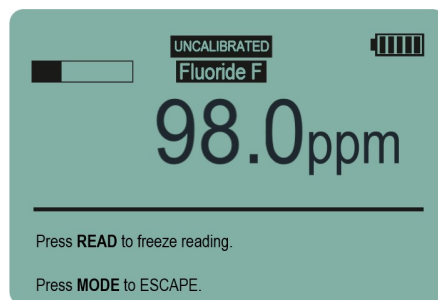
You are now in ION1 mode with your ISE displayed in the correct unit e.g. ppm.



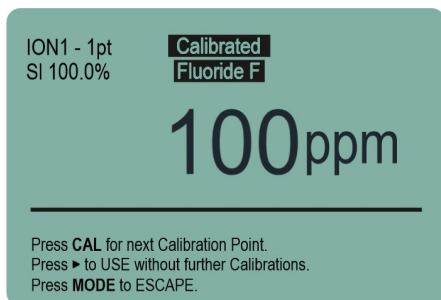
Press **CAL** to enter calibration mode.



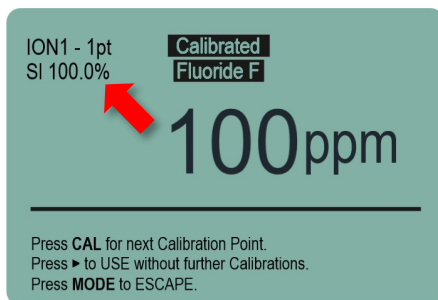
Press **right arrow** to select the standard concentration.



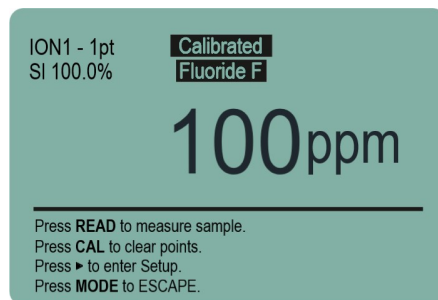
Insert the ISE into the standard and press **READ**.



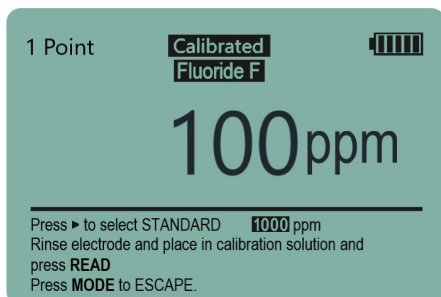
Once stabilised, the concentration will be set to the standard value.



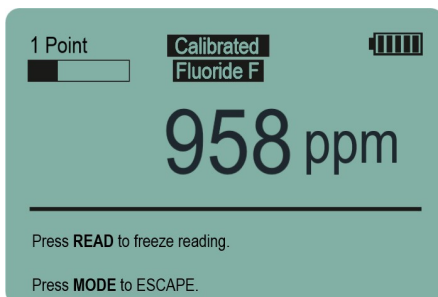
The instrument is now calibrated. The slope will be indicated and be 100%.



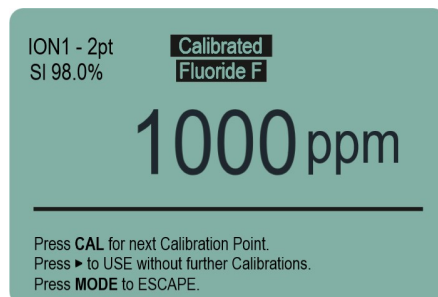
Press the **right arrow** if you would like to accept a 1-point calibration.



For a 2-point calibration press **CAL** and then select the second standard.



Then insert the ISE into the standard and press **READ**.

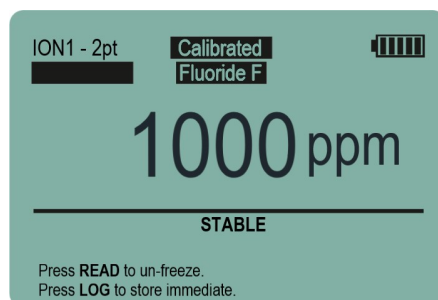
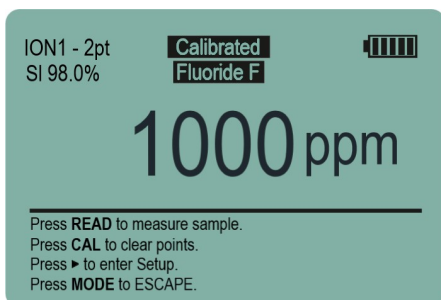


Press the **right arrow** to accept the 2-point calibration.

For a 3-point calibration select 10ppm as the first standard and 100ppm for the second standard. Then repeat the above three steps with the 1000ppm standard selected.

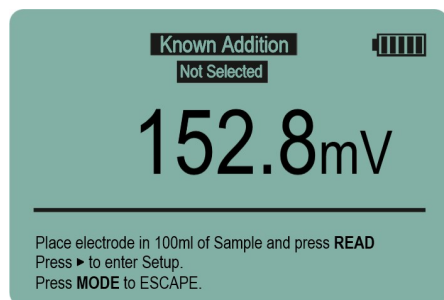
TAKING A SAMPLE READING:

Remove the ISE from the standard. Rinse with de-ionised water, blot dry and place the ISE in the sample. Stir briefly and then press **READ**. When stable the result will be displayed.

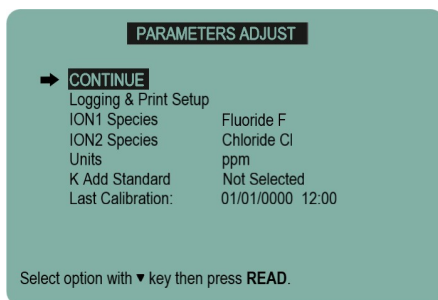


KNOWN ADDITION MODE:

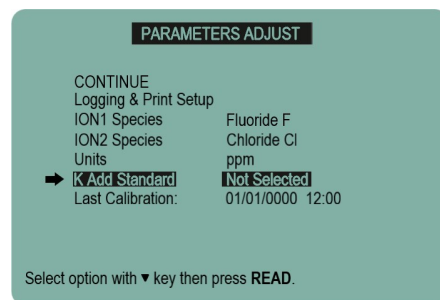
This is a technique used where the sample matrix is different to the standards or where a quick result is required without a direct calibration.



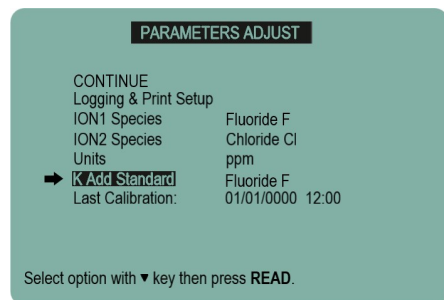
Press **MODE** until Known Addition mode is displayed.



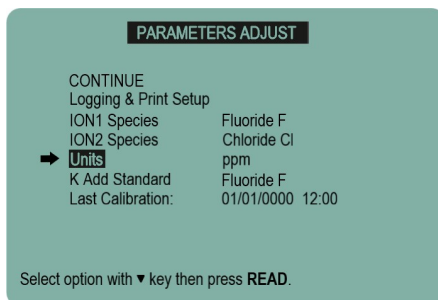
Press the **right arrow** to enter 'set up'.



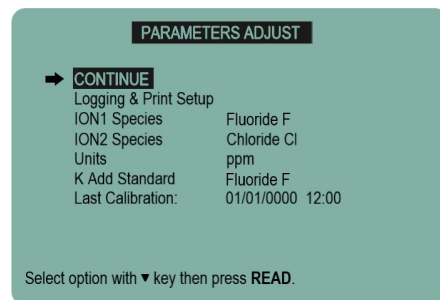
Press the **down arrow** and select the 'K Add Standard' tab and press **READ**.



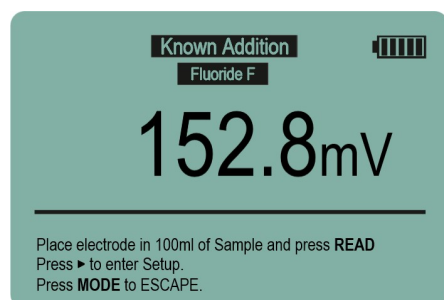
Press the **down arrow** until you reach the species required and press **READ**.



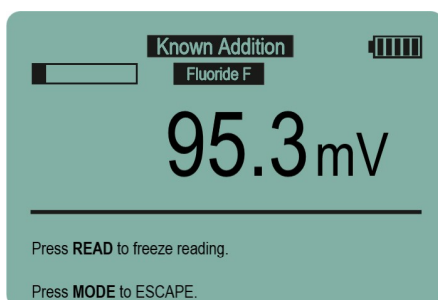
Press the **down arrow** to select 'Units' and press **READ** to select ppm or mol/l



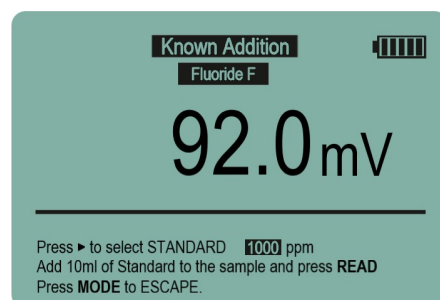
Press the **down arrow** until CONTINUE is highlighted and then press **READ**.



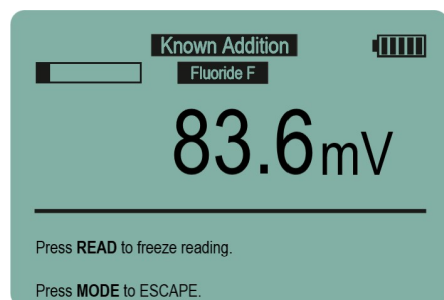
Press **MODE** until you are in the 'Known Addition' mode.



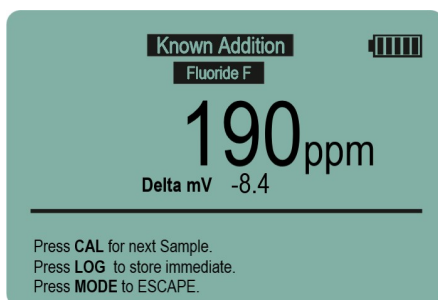
Place the ISE in 100ml of sample and press **READ**.



Press the **right arrow** to select the standard you are using and press **READ**.



Add 10ml of the standard solution to the same beaker, stir and press **READ**.

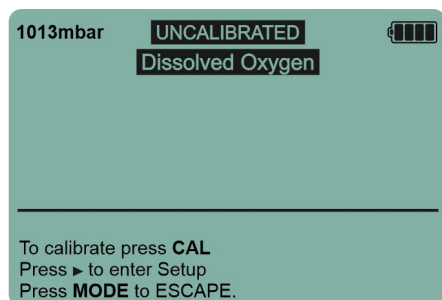


The QPEX8 will measure the solution and display the result, when stable, in direct concentration units.

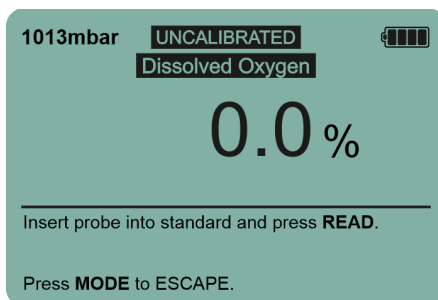
Note: This should be at least 10 times stronger than the expected sample concentration.

DISSOLVED OXYGEN MODE:

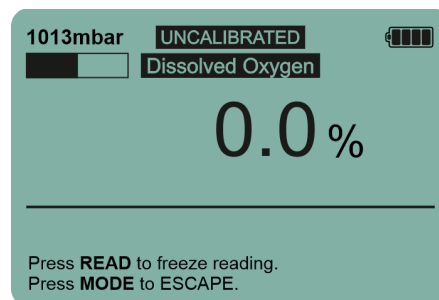
The QPEX8 Dissolved Oxygen Mode corrects for both atmospheric pressure and temperature and produces a consistent result corrected to what it would be at 1 Atmosphere and 25 Degrees Centigrade.



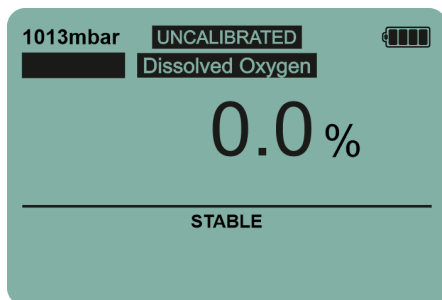
Press **MODE** until Dissolved Oxygen mode is displayed.



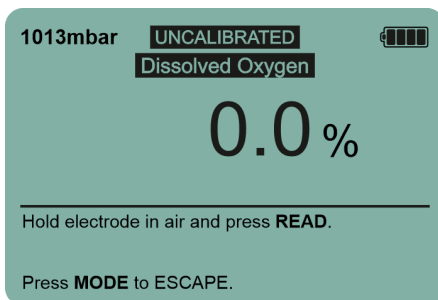
Press '**CAL**' to enter Calibration Mode.



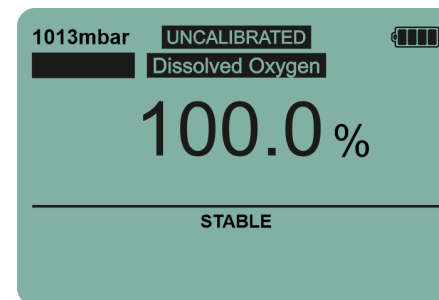
Place the Dissolved Oxygen Electrode into the Zero% Oxygen Solution and press '**READ**'.



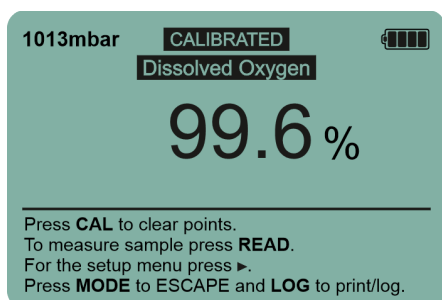
Once stable the meter will show the first calibration point.



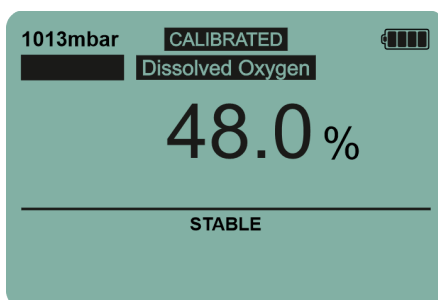
Agitate the electrode in air or hold under a fast flowing tap and press '**READ**'.



Once stable, the Dissolved Oxygen Mode is now calibrated.



To take a sample reading, place the electrode in the sample and press '**READ**'.



Once stable, the Dissolved Oxygen is now displayed on the screen.

The atmospheric pressure can be adjusted by pressing the right arrow key and entering the setup menu. From here you can also change the units to read Oxygen concentration in ppm (Parts per Million).

Before use the electrode tip should be rinsed in deionized water (tap water is also OK) prior to calibration and measurement. It is particularly important after the Zero-Point calibration. After use rinse the probe with water and replace the protective cap. The cap is supplied with a KCl (Potassium Chloride solution). If this solution is lost, then storing it with water is satisfactory.

BATTERY INSTALLATION:

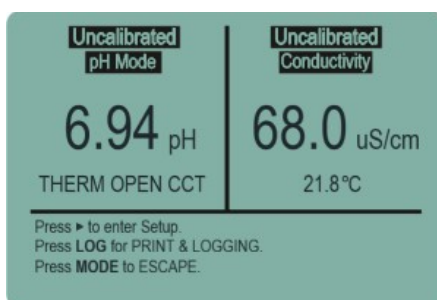
Remove the battery cover by loosening the retaining cross head screw. Please note this screw has a retainer and will therefore remain with the cover to prevent loss.

Once open unpack the 4 AA Batteries supplied and insert ensuring the polarity is correct for each battery. Replace the cover.

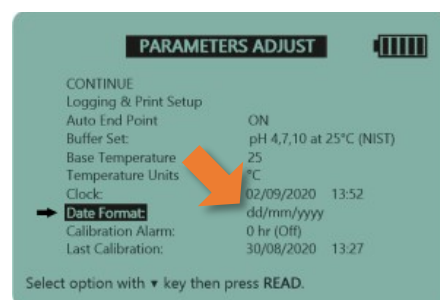
SETTING THE DATE & TIME:



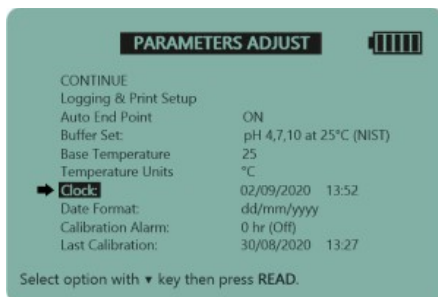
Switch the unit on using the **power** button.



Press the **right arrow** key to enter the Parameters Adjust screen.



Scroll down to the Date Format option and press **READ** until you reach the desired format.



Scroll down to the Clock option using the **down arrow key** and press **READ**.



Select **CANCEL** using the **down arrow** key and press **READ** until the current DATE in the entry box is removed.



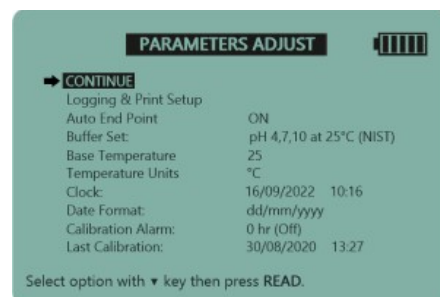
Select the current date digit by selecting the correct number and pressing **READ**.



When the entry box contains the correct date, select **ENTER** and press **READ**.



Repeat the steps above to enter the correct time and then press **READ**.



Press **READ** to return to the combined pH and conductivity mode.

Specification

Accuracy - pH	Resolves to +/-0.01 pH units
Automatic pH Calibration	Automatic calibration in all modes
Battery Life	200 hours continuous use - auto switch off and power saving options
Conductivity Accuracy	+/- 0.2% of reading
Conductivity Range	Auto-ranging from 0-999mS/cm in appropriate units
Connection	Multi pin DIN for Conductivity/Temperature combined probe - BNC for pH with 3.5mm Jack for ATC
Data Output	Mini USB - outputs CSV - 38,400 Baud
Data Storage	Storage of up to 64 files - Logging max 10,000 data points
Dimensions	175x88x48mm
Dissolved Oxygen	Range: 0-200% Saturation Resolution: 0.1%
Power Requirement	4 x AA Batteries
mV Range	+/- 1999.9 mV
pH Range	-2 to 16.00 pH units
Reference Temperature	Set at 25 degrees C
Temperature Compensation	Fully automatic
Warranty	2 year warranty - Excludes electrodes, accessories, consumables and misuse

Related Products



Glass pH Combination Electrode



K=1 Glass Conductivity Cell (Mini DIN)



Data Kit for Series 4 Meters

www.edt.co.uk/product/portable-multiparameter-meter-kit

