Series 4 Portable Ion Meter Manual

QP459

ION CONCENTRATION 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 QP459 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 QP459 will apply the actual slope of the ISE.

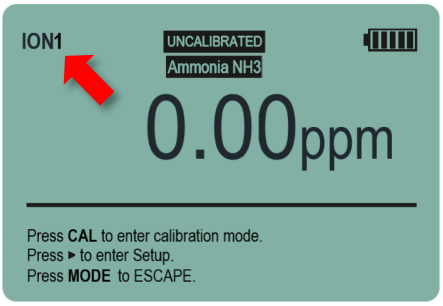
Finally, if you have a wide variety of sample concentrations and require good accuracy across the range you can perform a three point calibration. The QP459 will apply the actual slope to each segment of the calibration curve.

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.

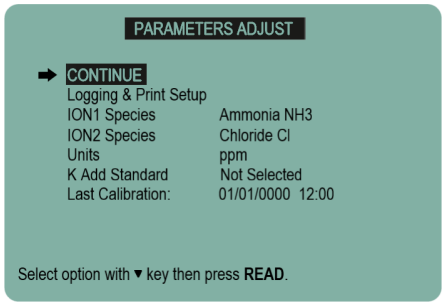
CALIBRATION:

The QP459 has a dynamic screen with full instructions provide on the display. Below is a guide to performing a simple calibration.

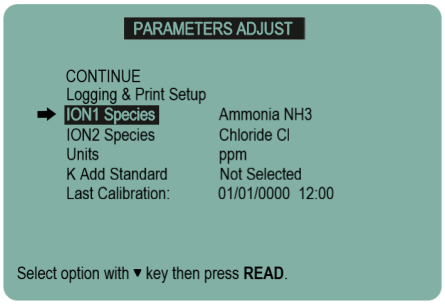
Switch on the unit using the **power button**.



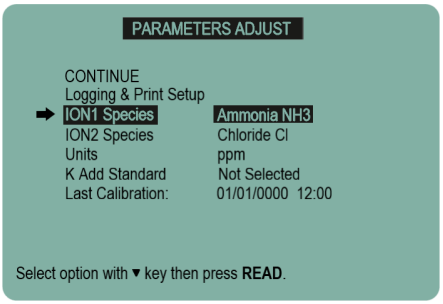
Press **MODE** until ION1 is displayed in the top-left hand corner of the display.



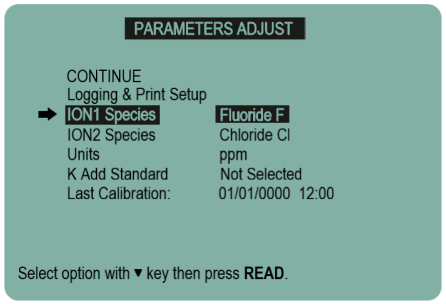
Press the **right arrow** to enter 'set up'.



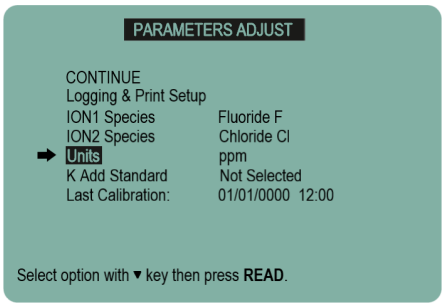
Press the **down arrow** and select the ION1 Species tab.



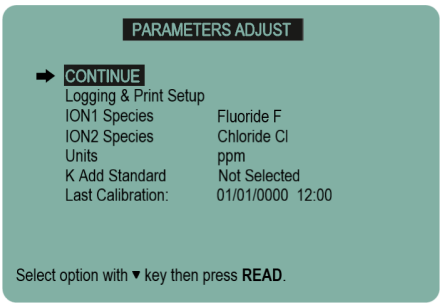
Press **READ** to highlight the individual ION species.



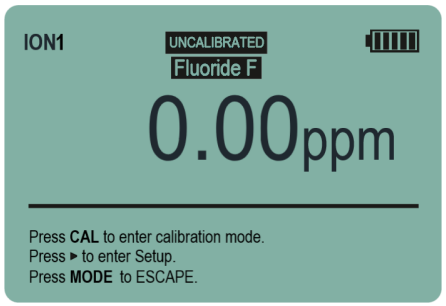
Press the **down arrow** until you reach the species required and press **READ.**



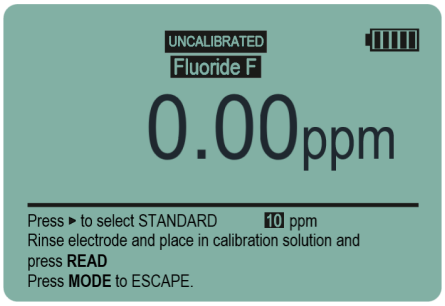
Press the **down arrow** to select 'Units' and press **READ** to select either ppm or mol/l.



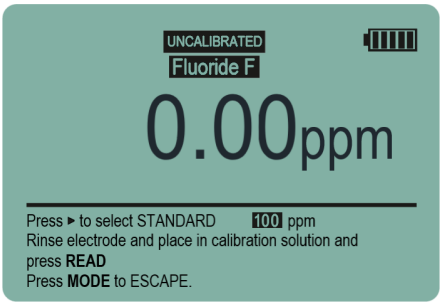
Press the **down arrow** until CONTINUE is highlighted then press **READ**.



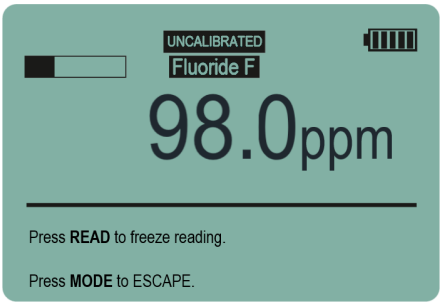
You are now in ION1 mode with your ISE displayed in the correct unit e.g.



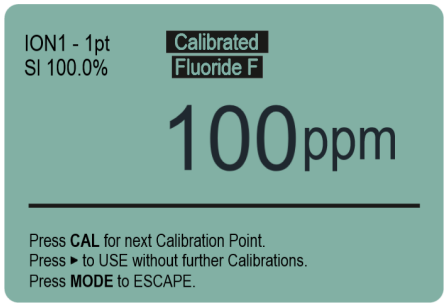
Press **CAL** to enter calibration mode.



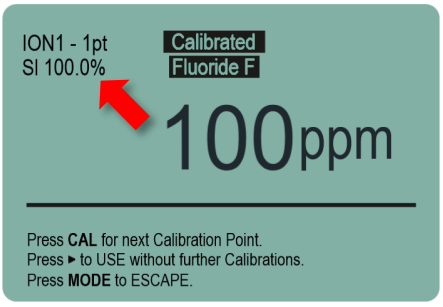
Press **right arrow** to select the standard concentration.



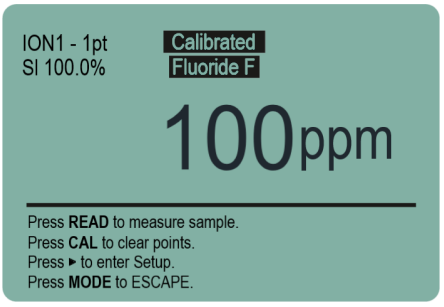
Insert the ISE into the standard and press **READ**.



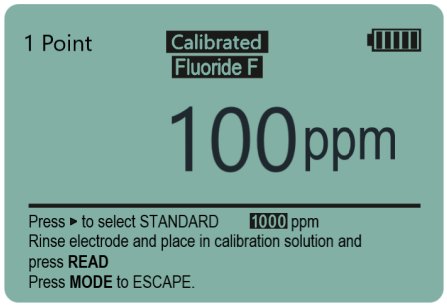
Once stabilised, the concentration will be set to the standard value.



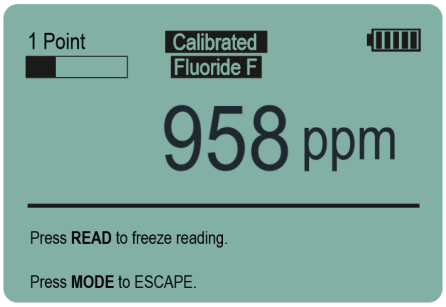
The instrument is now calibrated. The slope will be indicated and be 100%.



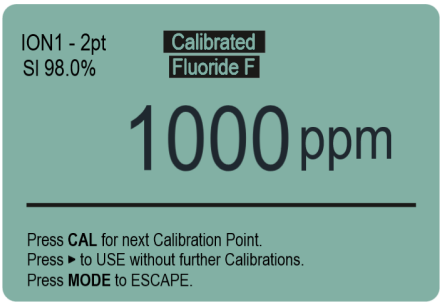
Press the **right arrow** if you would like to accept a 1-point calibration.



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



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

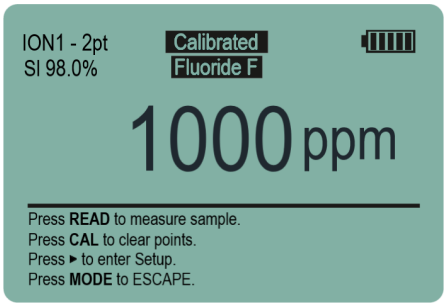


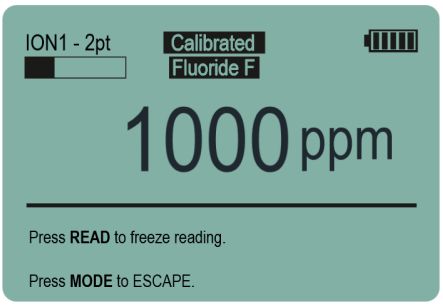
Press the **right arrow** to accept the 2-point calibration.

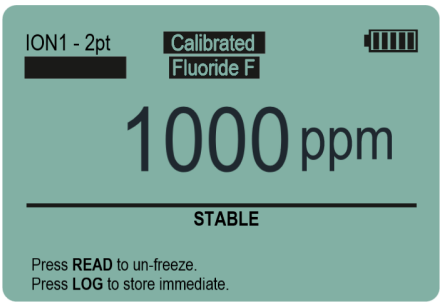
For a 3-point calibration select 10ppm as the first standard and 100ppm for the second standard. Then repeat the above three steps with the 1000ppm standard selected.

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.

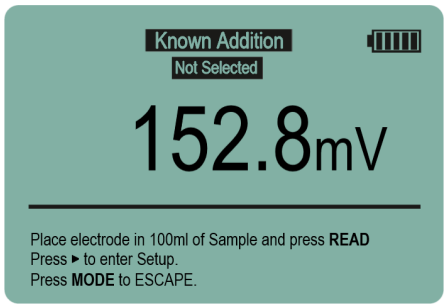




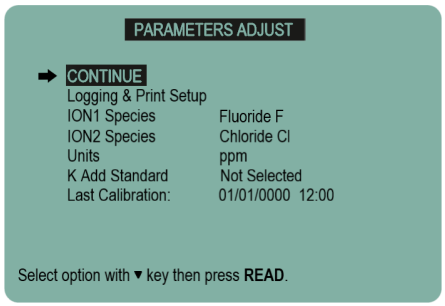


KNOWN ADDITION MODE

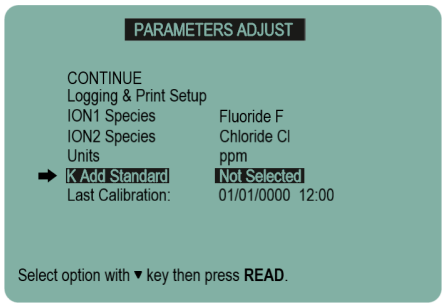
This as a technique used where the sample matrix is different to the standards or where a quick result is required without a direct calibration.



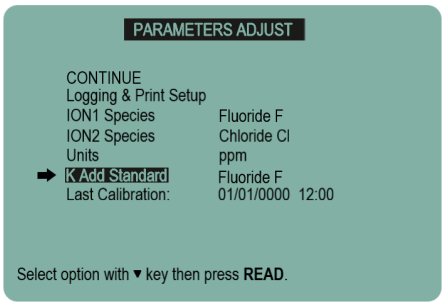
Press **MODE** until Known Addition mode is displayed.



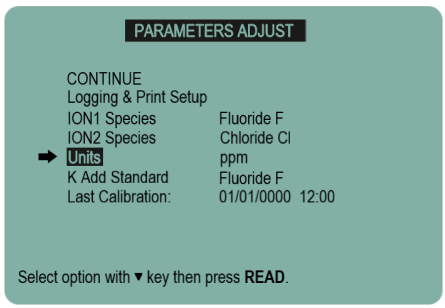
Press the **right arrow** to enter 'set up'.



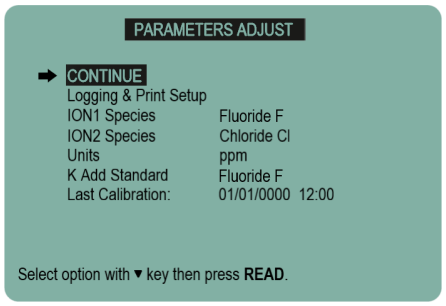
Press the **down arrow** and select the 'K Add Standard' tab and press **READ.**



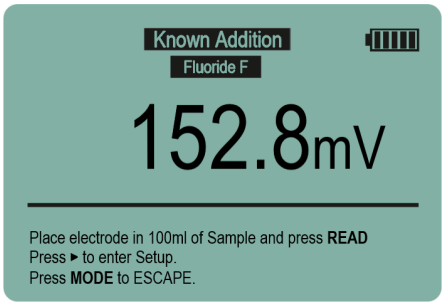
Press the **down arrow** until you reach the species required and press **READ.**



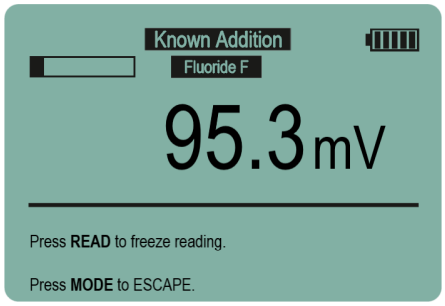
Press the **down arrow** to select 'Units' and press **READ** to select ppm or mol/l



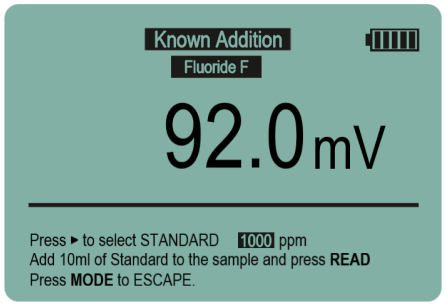
Press the **down arrow** until CONTINUE is highlighted and then press **READ.**



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

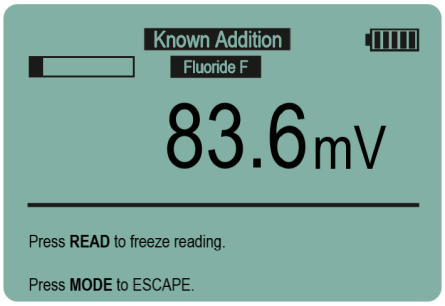


Place the ISE in 100ml of sample and press **READ.**

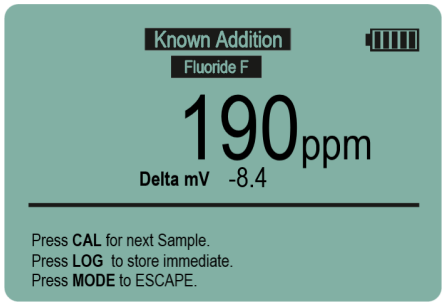


Press the **right arrow** to select the standard you are using and press **READ.**

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



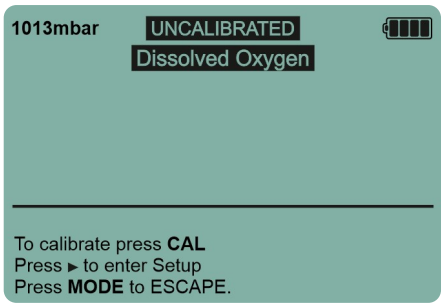
Add 10ml of the standard solution to the same beaker, stir and press **READ.**



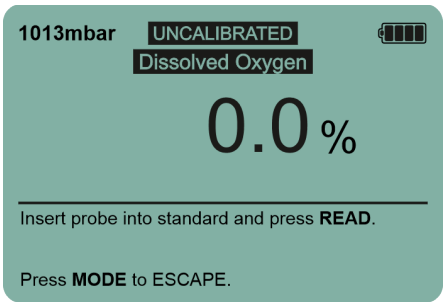
The QP459 will measure the solution and display the result, when stable, in direct concentration units.

DISSOLVED OXYGEN MODE:

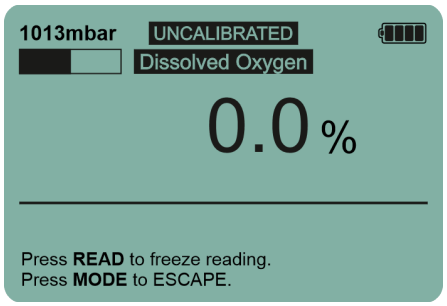
The QP459 Dissolved Oxygen Mode corrects for both atmospheric pressure and temperature and produces a con-sistent result corrected to what it would be at 1 Atmosphere and 25 Degrees Centigrade.



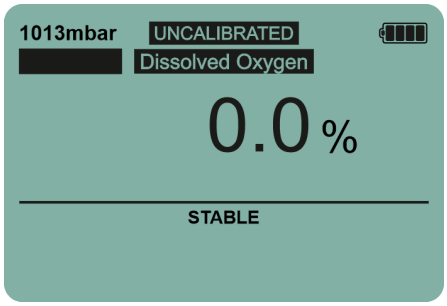
Press **MODE** until Dissolved Oxygen mode is displayed.



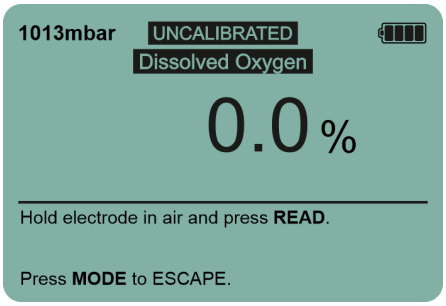
Press '**CAL**' to enter Calibration Mode.



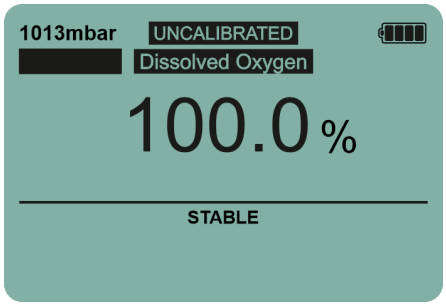
Place the Dissolved Oxygen Electrode into the Zero% Oxygen Solution and press '**READ**'.



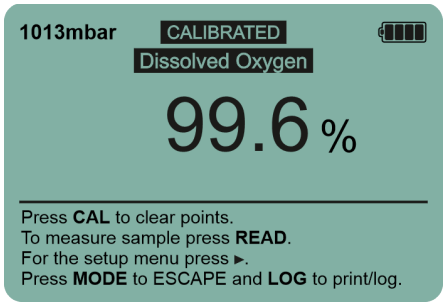
Once stable the meter will show the first calibration point.



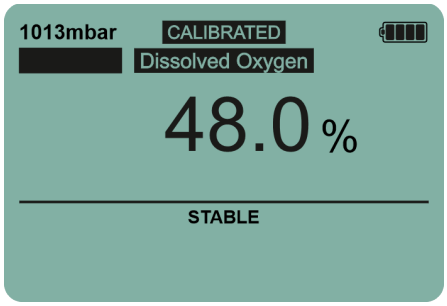
Agitate the electrode in air or hold under a fast flowing tap and press '**READ**'.



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 meas-urement. 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.

Specification

Accuracy	Resolves to +/-0.01 pH units
mV Accuracy	+/- 0.1 mV over the entire range
Battery Life	250 hours continuous use - auto switch off and power saving options
Commodity Code	90278011
Connection	BNC (pH & ISE) - 3.5mm Jack (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
pH & Ion Calibration	1,2 or 3 point automatic calibration with auto endpoint
Power Requirement	4 x AA Batteries
mV Range	+/- 1999.9 mV
pH & Ion Range	-2 to 16.00 pH units - refer to ISE spec for Ion range
Temperature Accuracy	+/- 0.1˚C over the -5 to 105 ˚C range
Temperature Compensation	Fully automatic for pH only
Warranty	2 year warranty - Excludes electrodes, accessories, consumables and misuse
Weight	350g - Meter only

Related Products

EDT Combination ISEs

EDT Standard Solutions

EDT ISABs

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