



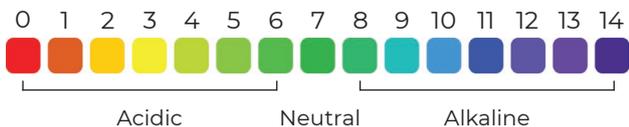
## PH METERS

The pH (potential hydrogen) level of any material or substance is defined by the acidity or alkalinity of that substance and is represented on a scale of 0 to 14; 7 pH being neutral, 0 pH acidic and 14 pH alkaline.

## APPLICATIONS

These analytical meters can be used in many areas, for example:

- Food production
- Water quality
- Process industry
- Laboratories
- Fish farming
- Agriculture
- Horticulture
- Hydroponics



## MAINTAINING YOUR PH METER

If you don't look after your pH meter then incorrect measurements of pH levels may occur.

As a minimum you must always clean the pH electrode by holding it under a running tap, if the pH electrode is excessively dirty a cleaning solution can be used or alternatively use de-ionised water.

Leave the electrode in the cleaning solution for at least half an hour, preferably overnight to ensure a thorough clean.

After soaking overnight, rinse the electrode and then soak in a 4 pH buffer solution before giving the electrode a final rinse. The electrode should then be ready for use.

When not in use, ensure the pH meter electrode is kept moist in either storage solution or a 4.01 pH solution. If the sensor is allowed to dry out completely, the instrument's performance will be affected and its guarantee invalidated.

If an electrode has been allowed to dry out or becomes slow to respond it may be rejuvenated by soaking the electrode overnight in a cleaning solution. Avoid touching the glass bulb at the end of the pH electrode at all times as this can easily cause damage.

## CALIBRATING YOUR PH METER

To ensure accurate measurements, it is necessary to calibrate/standardise pH meters on a regular basis. For this you will require pH buffer solutions. These standard, inexpensive solutions are used to check that the pH reading is correct. If it is not, it can be easily corrected following the procedure for the specific instrument.

Generally pH electrodes have a limited working life, dependant on the frequency of use. This life is approximately 12 months or 365 measurements.

# PH PAL PLUS PH TESTER

- Pocket-sized meter, ideal for everyday use
- Automatic re-calibration feature
- Easy to read 8 mm LCD display
- Display hold function

The pH Pal Plus pH tester is a user-friendly, simple to use pocket-sized pH meter that incorporates an automatic re-calibration feature. At the touch of a button, the instrument will automatically re-calibrate itself when used in conjunction with a 7.00 pH buffer solution.

The unit is housed in a water resistant case and features an easy to read 8 mm LCD display indicating pH over the range of 0 to 14 pH with a resolution of 0.1 pH and an accuracy of  $\pm 0.2$  pH.

The pH Pal Plus tester will power off automatically after ten minutes, maximising battery life. This pH Pal is ideal for measuring the pH in food processing, hydroponics and water testing applications. The pH tester is an invaluable tool when mixing concentrates with water.

The unit is powered by four LR44 button cell batteries (supplied) and includes a protective cap. For pH buffer solutions and capsules, see page 122.



PH INSTRUMENTATION



Order code	Description
813-513	pH Pal Plus pH tester
816-051	7.00 pH buffer solution

## OPTIONAL ACCESSORY:

- This ready-made 7.00 pH buffer solution ensures the pH meter is reading correctly



Specification	pH Pal Plus pH tester
Range	0 to 14 pH
Resolution	0.1 pH
Accuracy	$\pm 0.2$ pH
Battery	4 x 1.5 volt LR44 button cell
Battery life	150 hours
Display	8 mm LCD
Dimensions	15 x 32 x 170 mm
Weight	70 grams

## 8000 PH METER

- Easy to use 2-point re-calibration function
- Supplied complete with a pH electrode

The 8000 pH meter features an easy to read, LCD display and is supplied with a budget pH electrode.

The 8000 pH meter indicates pH over the range of 0 to 14 pH with a resolution of 0.01 pH and an accuracy of  $\pm 0.05$  pH. The pH readings are manually temperature compensated over the range of 0 to 60 °C (default 25 °C).

The unit will power off automatically after ten minutes, maximising battery life.

At the touch of a button, the instrument will automatically re-calibrate itself when used in conjunction with pH buffer solutions. See page 122 for pH electrodes, buffer solutions and capsules.

Order code	Description
860-800	8000 pH meter

The 8000 pH meter is inclusive of pH electrode



Budget pH electrode (823-500)



Specification	8000 pH meter
Range	0 to 14 pH
Resolution	0.01 pH
Accuracy	$\pm 0.05$ pH
Battery & life	3 x 1.5 volt AAA - 5000 hours
Sensor type	Combination electrode
Display	Custom LCD
Dimensions	25 x 56 x 128 mm
Weight	130 grams

## 8100 PH & TEMPERATURE METER KIT

- Simultaneously displays pH & temperature
- Automatic temperature compensation (ATC)

The 8100 pH meter features an easy to read, LCD display and is supplied as a kit which includes an 8100 pH meter, budget pH electrode, temperature probe, 4.01 and 7.00 pH buffer solutions and zip pouch for easy transportation and storage.

The 8100 pH meter indicates pH over the range of 0 to 14 pH with a resolution of 0.01 pH and temperature over the range of 0 to 99.9 °C with a resolution of 0.1 °C.

The pH readings are automatically temperature compensated over the operating range of 0 to 60 °C utilising the temperature probe supplied.

At the touch of a button, the instrument will automatically re-calibrate itself when used in conjunction with pH buffer solutions. See page 122 for pH electrodes, buffer solutions and capsules.

Order code	Description
860-810	8100 pH kit
170-101	Spare temperature probe



Temperature probe (170-101)

Budget pH electrode (823-500)



Specification	pH meter	Temperature
Range	0 to 14 pH	0 to 99.9 °C
Resolution	0.01 pH	0.1 °C
Accuracy	$\pm 0.05$ pH	$\pm 0.5$ °C
Battery & life	3 x 1.5 volt AAA - 5000 hours	
Sensor type	Combination electrode / Thermistor	
Display	Custom LCD	
Dimensions	25 x 56 x 128 mm	
Weight	130 grams	

# 8100 PLUS PH METER

- Manual/automatic temperature compensation
- Easy to use 2-point re-calibration function
- High accuracy  $\pm 0.02$  pH
- Waterproof IP66/67, robust design

The 8100 Plus pH meter is a three-in-one instrument that features a large easy to read, LCD display that indicates pH over the range of -2 to 16 pH with a resolution of 0.01 pH, mV over the range of -1000 to 1000 mV and temperature over the range of -39.9 to 149.9 °C with a resolution of 0.1 °C. The LCD display features both low battery indication and a user selectable backlight.

The pH readings are either manually or automatically temperature compensated over the range of 0 to 80 °C. To automatically compensate, it is necessary to utilise a thermistor temperature probe. Each unit incorporates an auto-power off facility that automatically turns the instrument off after ten minutes, maximising battery life.

The 8100 Plus has an integrated rubber seal to ensure complete water resistance and helps to reduce the possibility of damage in harsh environments. At the touch of a button, the instrument will automatically re-calibrate (two-point autocal) itself when used in conjunction with pH buffer solutions. For pH electrodes, buffer solutions and capsules, see overleaf.

Each unit incorporates an easy to use BNC connector and Lumberg screw-locking type connector, allowing a wide range of interchangeable thermistor probes to be used. We offer an extensive range of temperature probes, see pages 84 and 85 for full details.

The 8100 Plus is available as a meter only or as a complete kit.



General purpose electrode (823-501)

Temperature probe (170-100)

PH INSTRUMENTATION

## 8100 PLUS PH METER KIT

### Each kit contains:

- 8100 Plus pH meter (225-085)
- Temperature probe (170-100)
- General purpose pH electrode (823-501)
- 4.01 pH buffer solution (816-050)
- 7.00 pH buffer solution (816-051)
- Zip pouch (830-080)



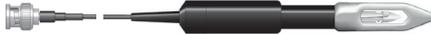
Order code	Description
225-085	8100 Plus pH meter*
860-820	8100 Plus kit
170-100	Temperature probe
830-231	Protective silicone boot - white
832-015	Stainless steel wall bracket

\*The 8100 Plus is exclusive of pH electrode & probe

Specification	pH	mV	Temperature
Range	-2 to 16 pH	$\pm 1000$ mV	-39.9 to 149.9 °C
Resolution	0.01 pH	1 mV	0.1 °C
Accuracy	$\pm 0.02$ pH	$\pm 1$ mV	$\pm 0.4$ °C (-9.9 to 69.9 °C)
Battery & life	3 x 1.5 volt AAA - 2500 hours		
Sensor type	Combination electrode / Thermistor		
Display	12 mm LCD		
Dimensions	32 x 71 x 141 mm		
Weight	230 grams		

# PH ELECTRODES WITH BNC CONNECTOR

pH meters are only part of the system, of equal importance is the design of the pH electrodes that are used to physically measure the product. This range of standard hand held pH electrodes are fully interchangeable via a BNC connector and are designed for use with the 8000/8100 and 8100 Plus pH meters or similar.

		Order code
<b>BUDGET PH ELECTRODE</b>  Ø12 x 120 mm	This plastic bodied electrode is ideal for measuring the pH in liquids and semi-solids, in a variety of industries including hydroponics, education and scientific.	823-500
<b>GENERAL PURPOSE ELECTRODE</b>  Ø12 x 120 mm	This plastic bodied electrode is ideal for measuring the pH in liquids and semi-solids in a wide variety of industries including food processing, agriculture and pharmaceutical.	823-501
<b>SPEAR-SHAPED ELECTRODES</b>  Ø6 or Ø12 x 120 mm	These glass penetration pH electrodes measure pH in semi-solid and soft materials. Ideal for use in a wide variety of industries including food processing and agriculture.	823-502 (Ø12 mm) 823-503 (Ø6 mm)
<b>KNIFE PROBE ELECTRODE</b>  Ø15 x 150 mm	This stainless steel, sheathed glass electrode is ideal for insertion into meat, cheese or similar. The knife probe can also be used in a variety of applications in food processing and agriculture.	823-510

**Please note:** maximum operating temperature range of pH electrodes is 80 °C. Each electrode is supplied with a one metre lead.

## CALIBRATION SOLUTIONS & CAPSULES

### pH buffer, cleaning & storage solutions

These ready-made solutions are suitable for checking and cleaning pH instrumentation and pH electrodes.

Buffer solutions are available for 4.01, 7.00 and 10.01 pH.



Order code	Description
816-050	4.01 pH buffer solution - 100 ml
816-051	7.00 pH buffer solution - 100 ml
816-052	10.01 pH buffer solution - 100 ml
816-040	Cleaning solution - 500 ml
816-041	Storage solution - 500 ml

### pH buffer capsules

These DIY pH buffer capsules are available in four standard values, 4.00, 7.00, 9.00 and 10.00 pH.

Each capsule makes 100 ml of solution when mixed with de-ionised water. Supplied in packs of ten capsules.



Order code	Description
816-004	4.00 pH buffer capsules (10)
816-007	7.00 pH buffer capsules (10)
816-009	9.00 pH buffer capsules (10)
816-010	10.00 pH buffer capsules (10)

# TDS CONDUCTIVITY TESTERS

- Accuracy of  $\pm 2\%$  of full scale
- Automatic temperature compensation (ATC)
- Water resistant to IP65
- Easy to use, pocket-sized meter

These TDS conductivity testers indicate ppm (parts per million) or  $\mu\text{S}$  (micro-siemens), ideal for monitoring a variety of applications including the amount of salts, nutrients or dissolved solids in water. At the touch of a button the readings are automatically temperature compensated over the range of 0 to 50 °C.

There are four models, two TDS and two conductivity testers, suitable for testing either low or high concentrations of total dissolved solids in liquids.

Housed in a water resistant case that features an easy to read 6 mm LCD display, each meter is powered by four LR44 button cell batteries (supplied) and is supplied with a protective cap.

See below for our range of ppm,  $\mu\text{S}$  and mS calibration solutions, all supplied in 90 ml bottles.



## ● TDS calibration solutions

These ready-made solutions are suitable for checking TDS and conductivity instrumentation and electrodes. Calibration solutions are available for 1382 ppm, 6440 ppm, 1413  $\mu\text{S}$  and 12.88 mS



Order code	Description
813-525	TDS1 ppm tester
813-526	TDS2 ppm tester
813-527	COND3 $\mu\text{Siemen}$ tester
813-528	COND4 $\mu\text{Siemen}$ tester
816-055	1382 ppm solution - 90 ml
816-057	6440 ppm solution - 90 ml
816-054	1413 $\mu\text{S}$ solution - 90 ml
816-056	12.88 mS solution - 90 ml

Specification	TDS1	TDS2	COND3	COND4
Range	10-1990	100-9999	10-1990	100-19900
Resolution	10 ppm	100 ppm	10 $\mu\text{S}$	100 $\mu\text{S}$
Accuracy	$\pm 2\%$ of full scale			
Battery & life	4 x 1.5 volt LR44 - 100 hours			
Display	6 mm LCD			
Dimensions	15 x 32 x 147 mm			
Weight	70 grams			