

# The Watermark

The Newsletter From

**Automated Water & Effluent Ltd**

Summer 2014

## CL8-K PORTABLE $\mu$ S METER KIT

We are delighted to add the CL8-K portable conductivity meter kit to our ever expanding range of portable instruments. Like the other instruments in our range of portable instruments the CL8 is a cost effective instrument for the measurement of electrolytic conductivity. The CL8 features 3 selectable ranges 0 - 200.0,  $\mu$ S 0 - 2000  $\mu$ S & 0 - 20.00 mS with automatic temperature compensation

The conductivity of a solution changes with a change in temperature i.e. a warmer solution has a higher conductivity than the same solution at a lower temperature so our instruments correct the conductivity back to the international standard of 25°C.

The CL8-K comes complete with carrying case and a simple robust epoxy bodied cell with a  $k = 1.0$ .

The measuring ranges may be extended by using cells with different cell factors, a cell with a  $k = 10.0$  the readings

displayed are multiplied by  $\times 10$  with a  $k = 0.1$  the readings the readings displayed are divided by 10.

The model CL8 portable conductivity meter can be used as a portable for testing the conductivity of distilled or demin water, town water, boiler water blowdown or evaporative cooling water or used in the laboratory or plant room on the bench for testing samples in beakers.

Cells for the CL8-K

We are able to offer replacement original cells and optional cells with  $k = 0.1$  and  $k = 10.0$  which extend the measuring range of the CL8-K portable conductivity meter kit.

A1003 General purpose black epoxy cell  $k = 1.0$  with ATC and 3' cable

A1004 General purpose black epoxy cell  $k = 0.1$  with ATC and 3' cable

A1005 Heavy duty cell in epoxy and PVC  $k = 10.0$  with ATC and 6' cable

C1000 conductivity calibration solution 1000  $\mu$ S supplied in 250 ml bottle

C10000 conductivity calibration solution 10,000  $\mu$ S supplied in 250 ml bottle.



## STOP PRESS

### MO5-PH Upgrades, ATC By Pt100 & Data Logging Option

Our MO5-PH surface mounting pH controller has just improved with a change in the electronic circuitry and software.

The changes now allow the use of an industry standard Pt100 platinum resistance sensor. This is used for both the temperature display and automatic temperature compensation for the pH range making life a whole lot easier.

As the MO5-PH now works with our standard ex stock pH electrodes which are already fitted with a Pt100 platinum resistance sensor

The simply easy to use menus of course remain the same.

## STOP PRESS

The MO5-PH is also available as an option with a built-in data logger enabling the instrument to take readings at user specified time i.e. one every minute or say ten times per hour etc. The stored records are saved to an S.D. Card which may be downloaded and used to print a graph of your pH values.

For customers who do not wish to do this and have a service contract, we can do this for you and produce a graph as PDF which can be e-mailed back to you after the service visit.

## STOP PRESS



# Technical Tips

## HF Resistant Electrodes



From time to time we have an enquiry for adjusting the pH of solution containing HF hydrofluoric acid, this is very hazardous products difficult to handle and should be treated with great respect adhering to all health and safety rules.

Having fitted a glass combination electrodes to the pH electrode system at a glass works only to get a phone call the next day that the glass bulb on the pH electrode was not there we very quickly learnt that HF acid and glass do not go together.

This was in the early 1970's remember we have been in this business for a very long time.

We now supply and fit AS183-20B antimony electrodes problem solved. It is to our surprise HF resistant glass electrodes are

advertised from time to time, how can this be HF acid cannot be stored in a glass container.

The trick appears to be make the glass bulbs from thicker glass so it last longer before being dissolved and neutralise the acid as quickly as possible so the pH always above 7 pH, then the glass is not effected.

If you are comfortable to do this then we can supply our PS183-20B pH electrode with a thicker glass, however all things in electro chemistry are a trade off against each other and a thicker glass has a slower response, the electrode will still be destroyed if left in HF at a low pH, so you have been warned.

Note you cannot use the AS183-10 Antimony electrode with any old pH controller as the output is different our P7635 & P7685 have special software for the AS183-20B.

## THE GRAPEVINE

All end user customer of ours recently mentioned he was having problems adding the correct volume of a mineral acid to his process, as the operators on each shift seemed to be able to add a different amount of acid. The volume added to his process had effects on the quality of the final product.

We designed and built a dosing rig with three dosing pumps each fitted with a Model AC-SF flow sensor with suitable chemical resistance, wetted parts which accurately measured the acid flow.

Our Technical Manager Chris Michael a very clever guy wrote the software for a mini plc to act as a batch controller with a mini flow diagram of the customers process. so now the operation knows the volume of acid to be added to the process operates presses the start

button and the system will batch in the required volume of acid. The plc display counts down the amount of acid to be dosed, level sensors in the acid tank stop the system if the acid runs out and operates an alarm.

If the acid container is empty the process cannot be started.

As the system is used to dose three process vessels, three pumps are fitted so all three vessels can be filled together.

Acid is delivered in 205 litre containers and the dosing skid is fitted with a transfer pump to fill the 300 litre day tank which has high and low level sensor to prevent the pump starting if there is not room for the 205 litres and as a high level alarm or policeman to prevent the day tank overflowing. The skid has a built in bund of 110% of the day tank capacity.



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