

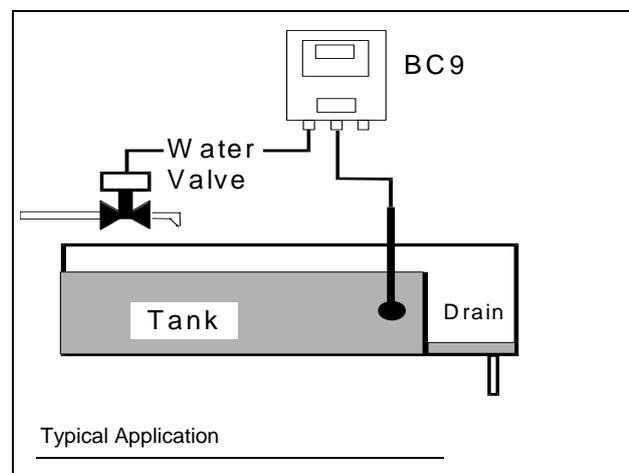
Application Note

BC9 Inductive / Electrodeless Conductivity Rinse Water Controller

The BC9 range of inductive or Electrodeless conductivity liquid controllers have been designed to enable a wide range of industries and applications to benefit from the very low maintenance requirements of inductive conductivity sensors. These sensors measure the concentration of conductive chemicals or contaminants over a wide range.

For some industries, water has been used freely for washing and rinsing but as global warming and the shortage of natural energy resources have more of an effect on everyday life the importance of accurate process control and reliable measurement is greater than ever. The requirement to control and monitor water consumption, reduce wastage and increase efficiency of processes is vital.

Water is becoming an area of increasing cost for a wide range of industries, as the price of both supplied and wastewater increases. It is unlikely that water costs will fall and with increased pressure from the Environment Agency for pollution control and waste treatment, effluent charges will inevitably have to rise to cover the costs of meeting increasing standards.



Water costs have had to be born, as the costs of water saving measures have been unable to be justified. The BC9 series of controllers change the economics of such calculations as with low capital cost and minimal maintenance they represent a breakthrough in price performance. For a plating shop using a continuous flow of water the pay back period could be a matter of weeks not years.

The BC9 uses an Inductive or Electrodeless sensor to measure the ability of the fluid to conduct electricity but unlike conventional conductivity sensors these do not have any direct electrical contact with the fluid. Consequently there is no need for the high level of maintenance and cleaning normally associated with conductivity measurement.

The Inductive sensors require minimal maintenance and cleaning and will work with up to 1mm of scale or encrustment. This gives immediate benefits where the process fluid puts an insulating coating on to exposed metalwork. For instance, in corrosion inhibition or where build up of contaminants on the probe is inevitable.

Rinse Tanks

In a rinse tank or other flow processes, the water is allowed to flow continuously to dilute the rinse water preventing a build up of contaminants carried over from the previous process. The flow is not normally controlled except to turn down the supply tap to a flow that looks OK. Rarely is the water measured for any contaminants and from time to time the tank is discharged to drain.

This works well in many situations, but it is likely that far too much water is being used and wasted.

If a BC9 and suitable Inductive sensor were fitted to the tank and the solution conductivity monitored, the input water could be controlled by a solenoid valve, and the water allowed to flow into the tank *only* when the contaminants rise above a particular figure. This will save water and produce a more controlled process as actual contaminant levels are measured. Very substantial savings can be made with a modest capital outlay.

For a typical plating rinse tank the following example demonstrates the possible savings:

Example

Water use	1 m ³ per hour
Working times	5 days / 10 hrs per day
Water costs	£1.35/m ³ (0.50 in 0.85 out)
Total cost of water	£ 67.50 per week
50% water reduction saves	£ 33.75 per week
Total price of BC9 controller, ECS22T 600mm Inductive dip Sensor and 0.5" solenoid valve	£537.00

Pay-back period **16 Weeks**

To summarise the BC9 controller and associated Inductive sensor, provide a low maintenance, reliable Electrodeless conductivity measurement system, which is *not* affected by coating on the sensor, and which will save money in water usage very quickly.

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These products comply with European Directives

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