

Re: Conductivity Sensor

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Luhan Monat wrote:

Hi,

I'm constructing a Hydroponics system, and need to monitor the conductivity of the nutrient solution.

Any suggestions on what to use for the sensors for stable long-term readings?

Thanks,

My favorite kind of sensor is a toroidal transformer type. It is completely enclosed in insulating material and is very resistant to fouling. Unfortunately, the electronics are fairly expensive. I think that Cole Parmer has some units for \$360. But it might be fun to try to make one of these sensors from simple parts.

The concept is that you excite a toroidal core (high permeability) with AC through a winding. Then you place a second toroid beside that one with another winding. The two cores are enclosed in insulation, with a hole passing through both cores. When submersed, the first core induces 1 turn's worth of voltage around the liquid loop that passes through the hole. The current that voltage moves through the liquid is sensed by the second core, acting as a current transformer. You amplify the AC current from the second core, rectify it, and the result represents the conductivity of the solution.

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