



Intech INSTRUMENTS LTD

October 2008

Irrigation Instruments



17th October 1973

Arab dominated OPEC cut fuel supplies to the US & Europe in retaliation for support of Israel in the Yom Kippur war.



23rd October 1940

Arguably the greatest football player of all time, Edison Arantes do Nascimento (Pelé) is born in Três Corações, Brazil.



24th October, 2003

Capable of flying at more than twice the speed of sound, The legendary supersonic passenger aircraft 'Concorde' makes its last commercial flight.

Pump Safety

Irrigation pumps are expensive pieces of hardware and its crucial they are looked after. One of the most common methods used to save pumps involves a Pt-100 or T/C sensor and a thermostat controller such as the Shimaden SR32, SR91 & Jumo eTRON (DIN Rail Mount) units below.



JUMO eTRON & 'All Black' SR91 (above)

Irrigation Data Collection



- Water Flow rates
- Pressure
- Temperature
- Power use
- Motor run times

Water is in high demand and so is the data that its use generates. Intech have a range of data logging units to meet your needs.

Jumo Midas



Midas SI: One of the most reliable units we stock

The Principle

Very simple. The temperature of motor windings is a very clear indication of performance. If the motor draws more current, the temperature rises. To prevent irreparable damage the pump motor can be cut off at a preset temperature. Measurement of the windings is achieved by using a Pt100 sensor and wiring this directly to a thermostat controller (above).



Californian SR91 Highway (above): Nothing to do with Shimaden or Irrigation in NZ

A seasoned performer in many industries, the popular Midas pressure transmitter is available in a variety of ranges up to +600 bar.

Available with a choice of electrical connection, the Jumo Midas continues to provide end users with excellent service.

- ◆ Standard 1/4" BSP fitting
- ◆ -1 to +25 bar standard ranges (stocked)*
- ◆ 2 wire 4-20mA output
- ◆ > 4x full scale burst pressure
- ◆ Stainless steel construction

Basic Principles: pH & Conductivity

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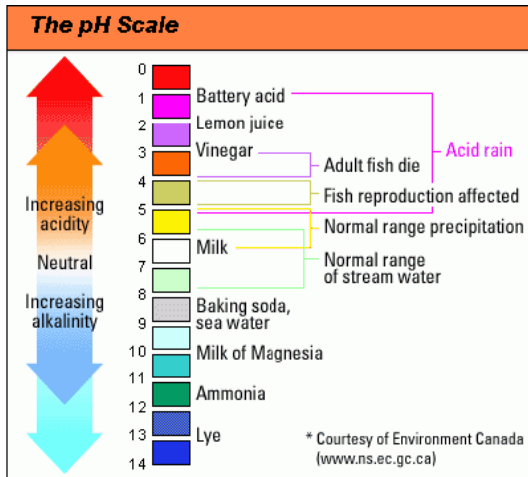
Many plants now require waste water analysis to ensure that toxins are prevented from making their way into our waterways, polluting the ecosystem.

There are various methods to 'clean' up waste water discharged from process plants - both chemical and biological. Either way some of the most commonly known measurements are pH & conductivity.

What is pH?

'p' (lower case) is the shorthand version for the mathematical term '-log₁₀' (negative log to the base 10). The 'H' refers to the Hydrogen Ion, H⁺ which should more correctly be written as [H⁺] standing for the 'concentration of Hydrogen ions'.

In easy to understand terms, the greater the hydrogen ion concentration [H⁺], the lower the pH.



- pH is a temperature dependant. As temperature increases, the measured pH of any solution will decrease meaning it will become more 'acidic'.
- A shift in value on the pH scale represents a ten-fold difference in [H⁺]. For example, a shift in pH from 2 to 3 represents a 10-fold decrease in [H⁺], and a shift from pH 2 to pH 4 represents a one-hundred (10 × 10)-fold decrease in [H⁺].



Pure Water Contains Few Ions & Strictly No Irons

Conductivity

pH alone cannot provide all information regarding the cleanliness of water. There are several other methods of analysis that may be referred to.

Typically, conductivity is one of the most popular of the measurements used along with an analysis of the Total Dissolved Solids (TDS).

The electrical conductivity of water is directly related to the concentration of dissolved ionized solids in the water. Ions from the dissolved solids in water create the ability for that water to conduct an electrical current, which can be measured using a conventional conductivity meter.



Jumo Lf series Conductivity Transmitters

When correlated with laboratory TDS measurements, electrical conductivity provides an approximate value for the TDS concentration, usually to within ten percent accuracy.

Conductivity is the reciprocal (inverse) of electrical resistivity and has the SI units of siemens per metre (Sm⁻¹). Measuring conductivity can provide a guide to the contamination of water. The higher the purity of water, the lower its conductivity



Intech LPI-pH Transmitter