Chemical Automation

Where did it start?

In the simplest type of an automatic control loop, a controller compares a measured value of a process with a desired set value, and processes the resulting error signal to change some input to the process, in such a way that the process stays at its set point despite disturbances. This closed-loop control is an application of negative feedback to a system. The mathematical basis of control theory was begun in the 18th century, and advanced rapidly in the 20th.

Chemical Measure

Chemical delivery

Probe sensors

Venturi

Squeeze Tubes

Where is it now?

PID Controller

A **proportional–integral–derivative controller** (**PID controller** or **three term controller**)

A PID controller continuously calculates an *error value* e (t) as the difference between a desired setpoint (SP) and a measured process variable (PV) and applies a correction based on proportional, integral, and derivative terms (denoted *P*, *I*, and *D* respectively) which give the controller its name.
In practical terms it automatically applies accurate and responsive correction to a control function

DPD Proportional Controllers

Colorimetric

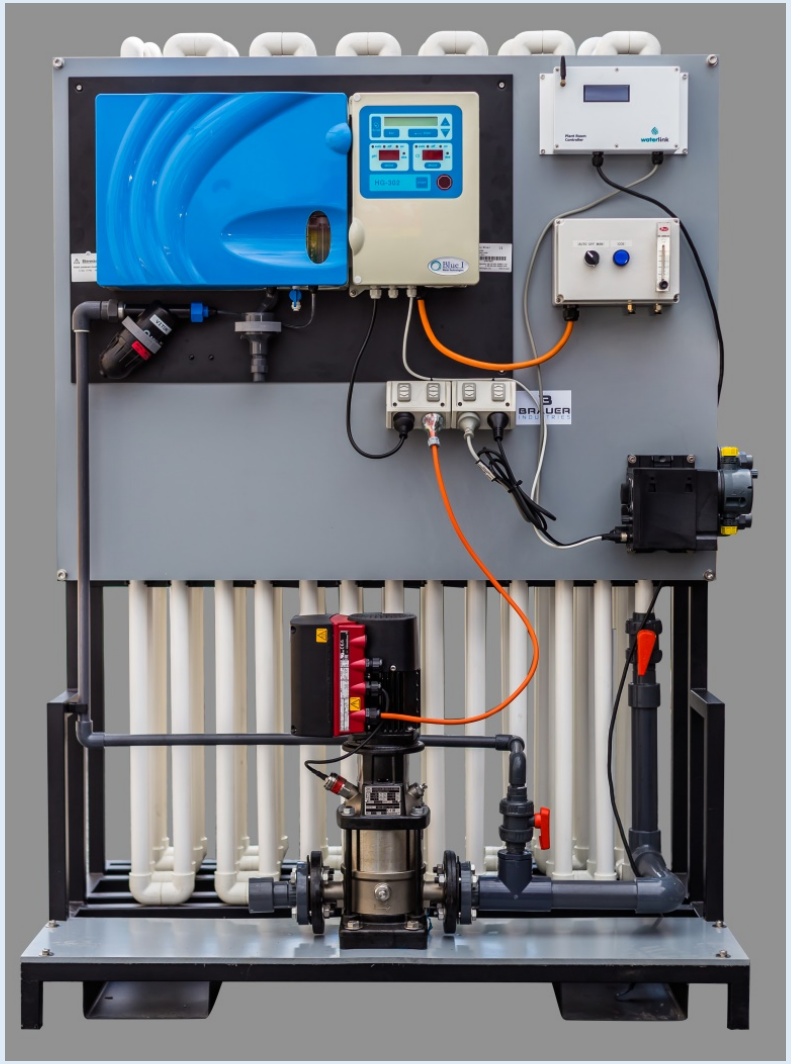
- Free Chlorine
- Total Chlorine
- Combined Chlorine
- pH
- ORP
- Turbidity
- TDS
- Temperature

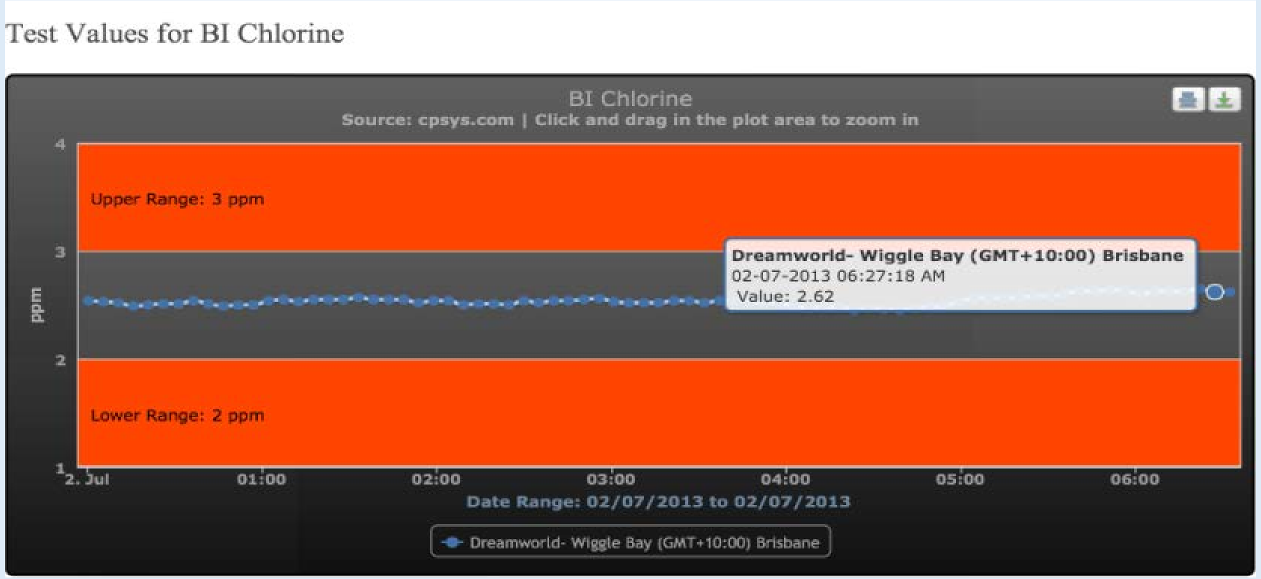
Proportional chemical dosing pumps

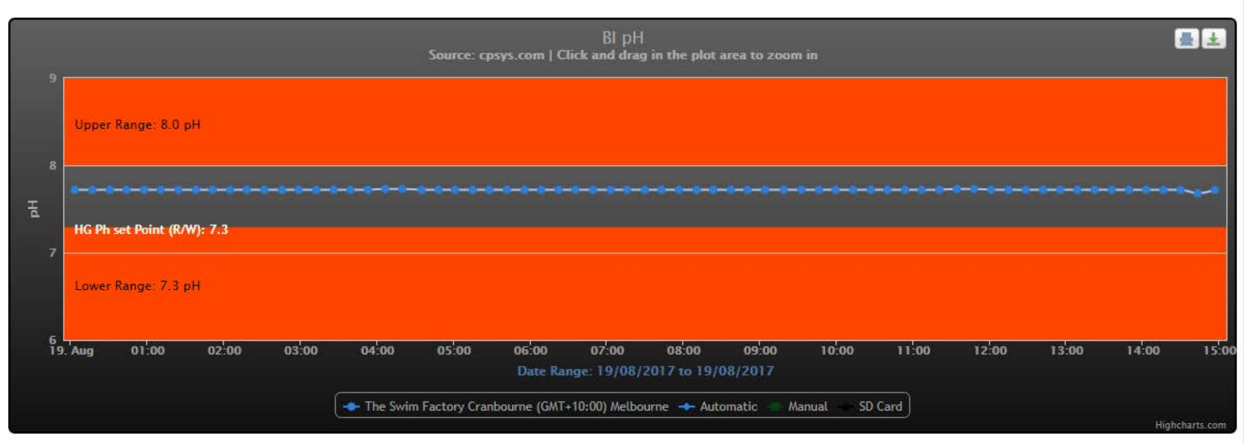
* Fast chemical delivery – Variable speed
* Precise chemical dosage rates
* Slows dose rate down near setpoint

Wifi Connectivity

Importance of Accurate Chemical Control



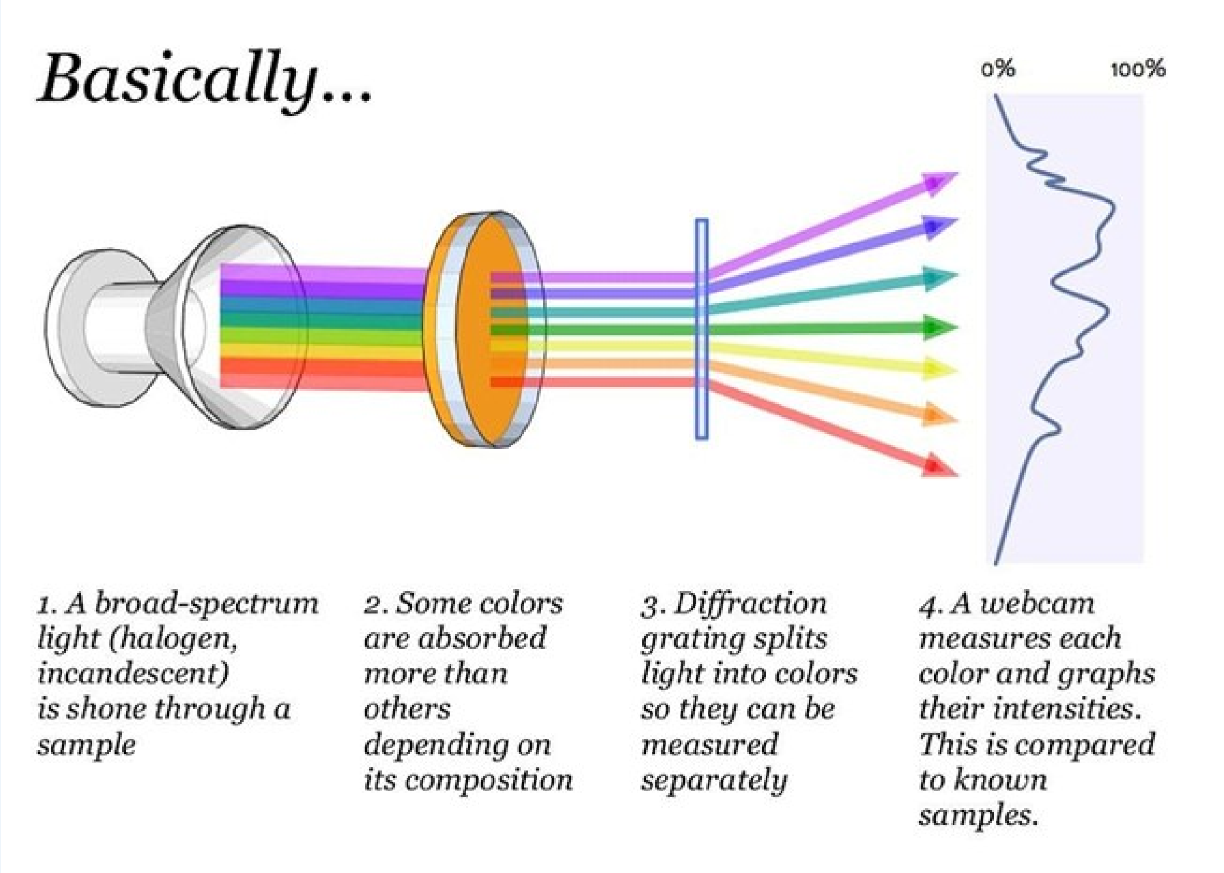




Where is it headed?

Spectrophotometry

How does it work?



Laboratory precision water tests conducted continuously throughout the day in your plant room!