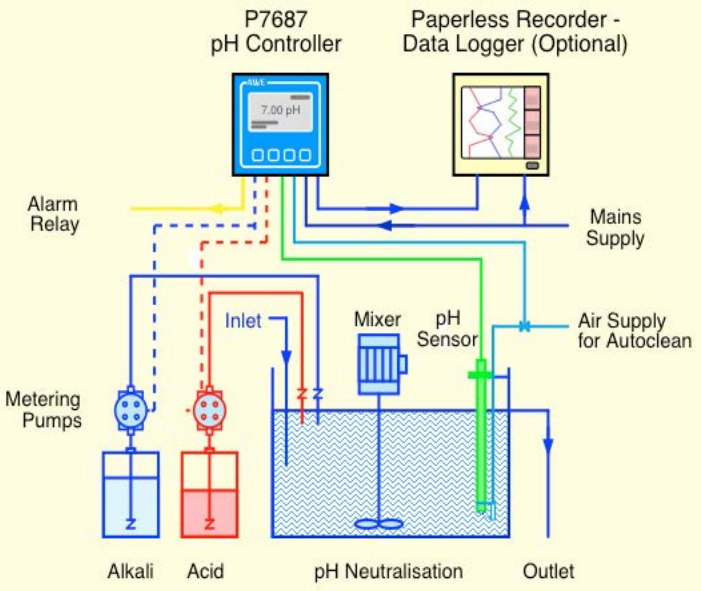
The Watermark

The Newsletter From Automated Water & Effluent Ltd Autumn 2016

New pH/Redox Controller.

The latest addition to our range of instruments is the P7687 pH / Redox controller.
The P7687 is a microprocessor panel mounting pH, mV and °C instrument featuring a multiline graphic display.
The instrument displays both the pH and temperature along with status information on the graphic display.
Offering more functionality than our long-standing top of the range P7685 pH controller (which is still available).
The P7687 can be configured to work with a glass pH electrode, an antimony electrode, or a redox millivolt electrode.
The temperature input provides automatic temperature compensation for a glass pH electrode and a solution temperature output.
The P7687 has two control relays, one alarm relay and an auto-clean relay.
The control relays can be user configured for either on / off control, as either high / low, high / high or low / low operation. Each has variable hysteresis and delay timers.
The two control relays can also be configured as PWM (pulse width modulation) control, which is designed for controlling solenoid valve or very small motorised dosing pumps. The pulse width modulation is based on a timed cycle, which is user-configurable between 0 - 99.9 seconds (with a minimum of 0.3 seconds).The relay will operate for the configured time, and then waits for a time, the on time is then automatically adjusted based upon the deviation of the measured value in proportion to the set-point value. (For example, if the measured value is getting closer to the set-point value - the time decreases. If the measured value is a long way from the set-point value - the time increases).
For use with solenoid dosing pumps with external pacing control, the P7687 can be configured to use PFM control. In this instance, when the speed of the dosing pump is automatically increased the greater the deviation between the set-point and the measured value. Each contact closure of the PFM relay (pulse frequency modulation) results in a stroke of the pump, the P7687 able to offer up to 120 pulses per minute
The PWM and PFM control maybe selected for both relays and used for controlling the dosing of both acid and alkali with PID of both pumps.
There is an alarm which is adjustable for both high and low set points, with a 0 - 99 second delay timer and selection for direct operation of fail to safe alarm.
The forth relay is for auto-cleaning of the electrode. This has a timer for the initiation of the clean cycle, a second timer for the clean duration, and a third timer for the hold cycle - which allows the electrode time to recover from being cleaned. The model P7687 has 2 isolated current outputs selectable for either 0 - 20mA or 4-20mA, which maybe user configured for 2 x pH, 2 x mV, or pH & °C.
Two logic inputs are available which inhibit the operation of the control and alarm relay, so the instrument goes into a standby mode when operated.
Designed to provide reliable, accurate, and dependable measurement of many industrial processes.

Typical Installation



Technical Tips

Air Powered Mixers

As many of our regular customers and readers already know, we make a range of simple, cost effective mixers - which include our TM range of tank top mounting mixers.

TM range of tank mounting mixers are high speed direct drive mixers with marine type propellers for use in vessels which are always full of liquid (or paired with a suitable level controller.)

There are 5 models in the range from TM0 to TM4 with motor sizes from 0.25kW to 1.5kW with 316 stainless steel shafts and 3 bladed impellers.

The GMW range is comprised of geared mixers with larger diameter flat bladed impellers for use in vessels with more viscose liquids like polyelectrolyte or vessels with varying liquid levels.

Sizes range from GMW0 to GMW4 with 316 stainless steel shafts and flat bladed impellers, with motor sizes ranging from 0.18kW to 3.0kW.

We have helped customers recently who have requested mixers with air motors. Compressed air is an ideal way to power a small high speed mixer as the speed of the mixer can be easily varied by adjusting the air pressure / flow rate.

The mixer speed can be set from just a few RPM to the maximum allowed by the liquid viscosity.

One disadvantage to air mixers is that they must not operate out of the liquid. This is because over-speeding can occur which could damage the mixer and the vessel. Also the airflow is high, requiring a substantial sized compressor with a motor several times larger than a mixer with an electric motor for the same duty.

Also note - if the liquid viscosity changes the mixer speed will also vary even if the airflow rate remains the same. This will not overload the motor as it would with an electric mixer.

Water Feature Oxidising Biocide Dosing

A common application we are asked for is a simple cost effective solution to control the oxidising biocide in a water feature or fountain.

We have a simple PVC or PP back plate we build, complete with a PVC manifold fitted with a flow and return isolating valve. This allows easy isolation so that the redox sensor can be safely and easily removed for cleaning and calibration.

The manifold is also fitted with a flow switch; so chemical dosing can only operate when there is a sample flow. This prevents the manifold filling with the chemical reagent when no flow is present, without a flow the dosed reagent cannot circulate and mix.

The manifold also has a non-return valve too, so that the reagent must be circulated through the system before being measured by the sensor.

The controller is our well known and easy to use R3647-W surface mounting IP65 redox controller with 2 control relays, where one is used to control the dosing pump, so that the other control relay can be used as a low level alarm for use with a BMS system. The 4-20mA analogue output can be used for retransmission, data-logging or connection to a BMS system for trend recording.

The pump is our standard HY-BL 06-06 surface mounting electronic dosing pump with wetted parts in PVDF, PTFE, and ceramic with Viton 'O' rings and seals. The HY-BL is supplied with an injection fitting with a built in non-return valve and a foot-valve and strainer assembly.

Remember - you heard it on the grapevine.

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