V600® DISINFECTION CONTROL SYSTEM

OPTIMUM OPERATION

Introduction

The Evoqua Water Technologies microprocessor based V600® Disinfection Control System is designed for the automatic control of disinfection and chemical treatment processes in drinking water conditioning or industrial process applications. To obtain maximum benefits from the V600® and ChemTrim® controllers, it is necessary to consider certain installation requirements.

Optimum operation

The controllers should be sited in dry conditions and preferably at an ambient temperature between 0-50°C.

The residual cell and transmitter can be mounted adjacent to the controller or positioned at some distance from the controller.

To achieve good control the following should be noted:-

- The chlorine/sulphur dioxide solution should be thoroughly mixed with the draw off point. A minimum of 10 pipe diameters, should be allowed for. If this is not available then an inline mixer is required
- For a chlorination control system, there should be a minimum of 45 seconds of contact time a maximum flow rate between the pointof complete mixing (not the injection point) and the inlet to the residual cell (see Fig 1 below)
- For dechlorination, no contact time is necessary other than that for thorough mixing
- The primary loop process time should be a short as possible. The greater the fluctuations in flow or water quality, the shorter the process time should be in consideration of the above. Ideally 4 minutes or less, certainly within 15 minutes. The process time is the time taken at minimum flow for a dosage change to pass though the system and be registered by the controller.

The process time is made up of the time taken by the following:-

1. The dosage change itself, which is only a few seconds of motorised positioned movement.
2. Flow of chlorine/sulphur dioxide solution in the delivery pipework to the point of application. (not relevant if using sodium hypochlorite).
3. Flow at its lowest velocity from injection point to the sample of water take off point.
4. Flow from the sample water take off point to the residual cell.
5. Time for measurement and registration (assume a nominal 10 seconds).

(2) (3) and (4) as can be seen are calculable.

At all sites, the position of the injection and sample take-off points are important to achieving good control. The process time can be improved by reducing the size of the solution and sample pipework as long as adverse conditions such as excessive friction loss are not created. Sample water flow can also be speeded up by employing a bypass system.

For several reasons, it is generally preferable to position the residual cell and transmitter close to the sample take off point.

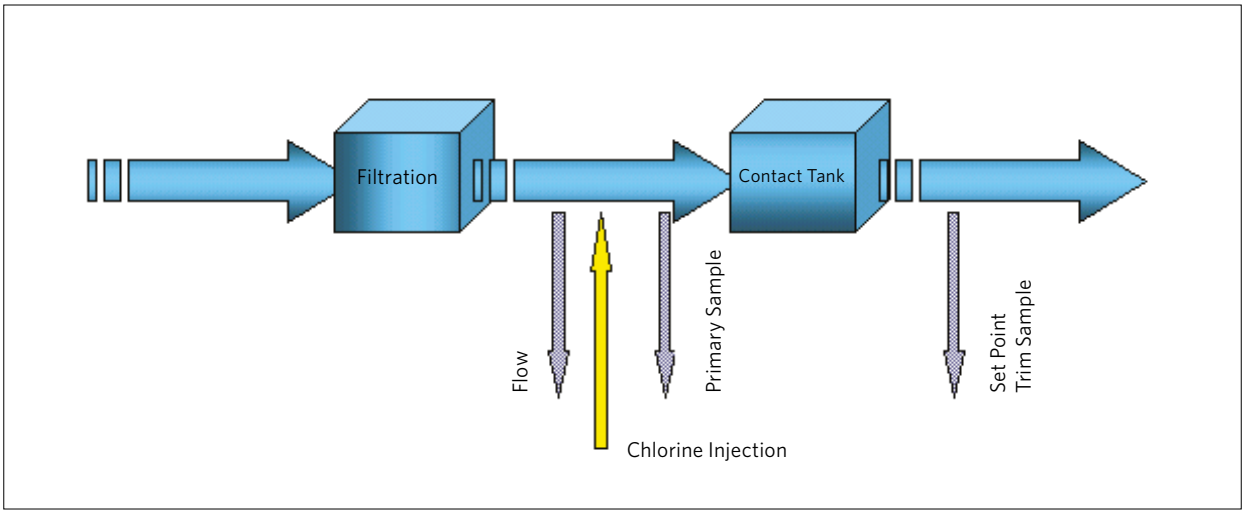

Fig.1 Primary and set point trim control

EVOQUA WATER TECHNOLOGIES

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