



# ABB RECORDING & CONTROL APPLICATION



## Recording and Control in Water Dosing Processes

### An Introduction to Water Dosing

Water dosing accuracy and stability are an important part of the treatment of water, whether clean or waste. Various chemicals are added throughout these treatments that must be carefully regulated to eliminate potentially adverse effects, either to health or to the environment. Dosing involves adjusting the levels of chemicals added to a batch or process stream to maintain a set concentration. This is achieved by continuously monitoring the process using on-line instrumentation that automatically regulates chemical dosing to ensure levels are maintained without over- or under-dosing.

One example of a dosing process that must be carefully controlled is fluoridation. There are many different international standards for fluoridation. For example, in the U.S., the decision to fluoridate is made by the state or local municipality and in some parts of the world, fluoride is added to public water supplies to help improve dental health. Studies have shown that the addition of low concentrations of fluoride of 1 mg/l can assist in reducing the incidence of tooth decay.



In the UK, the addition of fluoride to drinking water is governed by the Code of Practice on the Technical Aspects of Fluoridation of Water Supplies 2005. Responsibility for ensuring compliance with the code rests with the Drinking Water Inspectorate (DWI). The DWI has the power to take action against any water company that is found to exceed the permitted maximum fluoridation dose of 1.5 mg/l, the limit specified by the Water Supply Regulations 2000. It is therefore essential that water companies are able to accurately monitor and regulate fluoride doses within the prescribed limits.

### What ABB products are suitable?

#### ScreenMaster RVG200

The RVG200 paperless recorder provides a versatile and secure solution for data recording. It is ideal for recording the dosing concentration level and monitoring pump status and fluid flow rate. The RVG200 is capable of collecting data ControlMaster using Modbus™ communications, without the need for an analogue input card.



#### RVG200 features include:

- Intuitive and easy-to-use operation with touchscreen technology
- High visibility process displays
- Remote access and operation via Ethernet
- Hosedown protection to IP66 and NEMA 4X
- Automated process data management using ABB's DataManager Pro PC-based historical data analysis tool

#### ControlMaster Controllers

ABB's ControlMaster range of PID controllers are widely deployed in dosing apps. The CM10, CM30 and CM50 controllers offer a wide range of control functions and feature straight forward operator controls. With their full-colour TFT displays, all controllers in the ControlMaster range provide engineers with a clear and comprehensive overview of process status and key information. These displays can be tailored to show specific process data, while a chart display provides short-term trending information.



### Dosing Process Overview

Achieving dosing control stability that results in a final product that is both safe and consistent can be difficult. This is especially the case where flow rates vary rapidly and there is a significant delay between the moment of dosing and seeing the results. These conditions can often leave the control system struggling to achieve acceptable end product quality.

Using one of ABB's ControlMaster series of PID controllers, accurate and stable control can be achieved by changing the dosage control according to the measured flow. This enables the dosing of variable flows to be controlled effectively.

Additionally, by using ABB's ScreenMaster range of paperless recorders, operators can obtain a secure record of the process that can be easily stored and retrieved for future reference to prove that quality and legal requirements have been met.

When used together, ABB's ControlMaster and ScreenMaster devices can deliver the following key benefits:

- Accurate process control
- Secure data recording
- Full integration with telemetry
- Remote web monitoring
- Quality reporting
- Process alarming

