



AUTOMATIC WATER QUALITY INFORMATION SYSTEM (AWQIS)

An AWQIS System meets the need for precise and reliable information on the quality of continental surface water. This type of control can be applied to critical points to monitor outflows in protected areas through the real time measurement of physical-chemical parameters and the possibility of activating contamination alarms.

An AWQIS is made up of a Network of Automatic Alert Stations (AAS) installed along the course of a river in sections which are considered to be critical. These stations measure basic parameters in real time which are representative of water quality (level, flow rate, turbidity, conductivity, dissolved oxygen, temperature, organic matter, ammonium, phosphates, nitrates and any heavy metals).

Data is sent to the Control Centre and managed by specialized staff. By using this data, behavior studies can be carried out and trend curves can be analyzed. The techniques used to analyze the water vary depending on the parameter analyzed and the measurement ranges.

SICE AND THE AWQIS PROJECT

The AWQIS project was implemented by the Water Quality Division of the Ministry of Public Works, Transport and the Environment in two phases between September 1993 and November 1995.

The alert networks which are part of the AWQIS allow real time monitoring of the river's water quality, which allows rapid detection of discharges and easy location of potential causes.

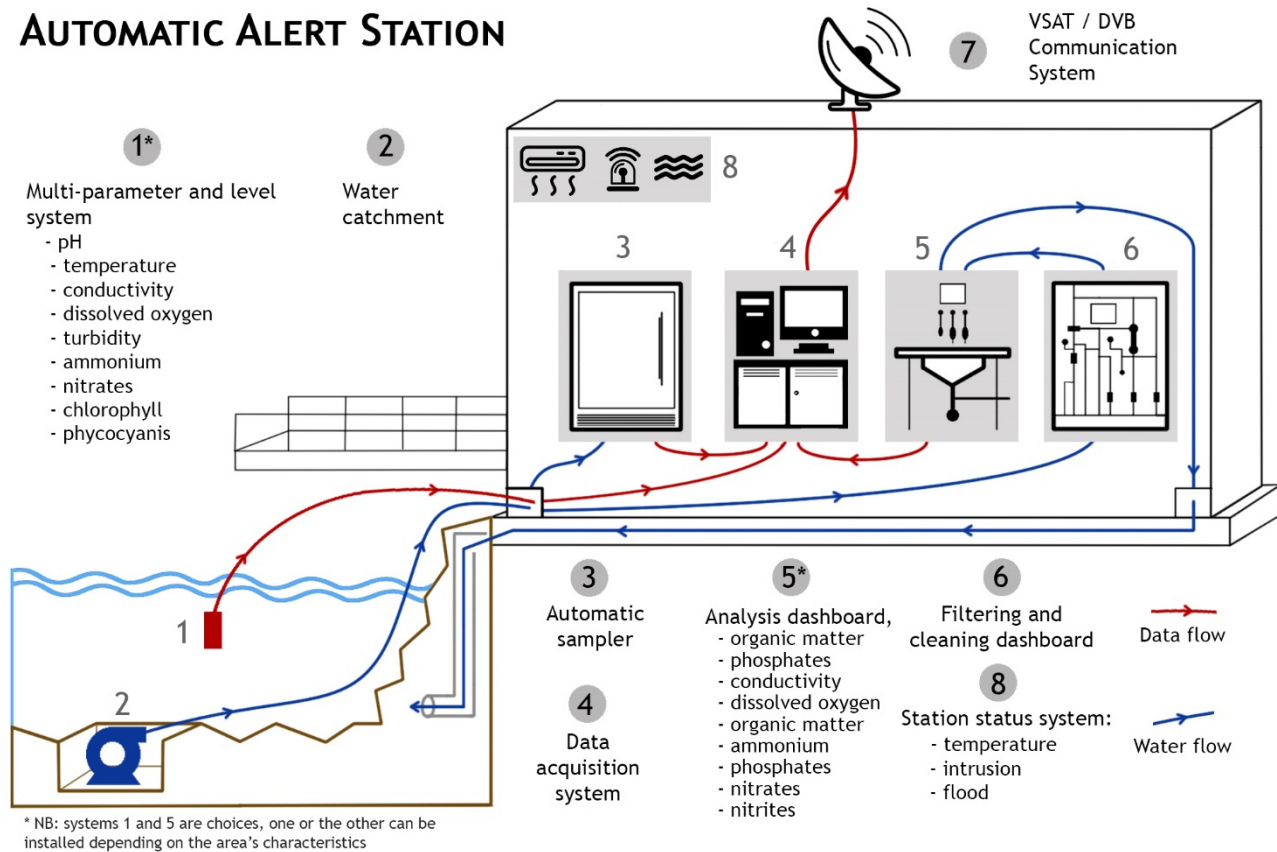
SICE installs metering networks and offers subsequent maintenance and operation services, encouraging the use of AWQIS by the authority's staff as part of their protection and warning activities in zones of special interest, river patrols and water quality management for activities to monitor, control, authorize and sanction waste discharge into a river basin.

Following the successful implementation of the System in basins in the north of Spain (Cantábrico and Miño-Limia), SICE continues to be involved in the AWQIS project, maintaining, operating and renovating AWQIS networks in the Tajo, Segura and the Duero river basins and the marine water network in the Principality of Asturias.



STRUCTURE OF AN AAS

AUTOMATIC ALERT STATION



MULTI-PARAMETER INTEGRATED SYSTEM

SICE has designed a latest generation Multi-Parameter Integrated System called "Model Tajo" to measure specifically the quality of surface water, ground water and waste water.

This model has a continuous measurement sensor to analyse the water quality. It measures the following parameters:

- PH
- Temperature
- Conductivity
- Dissolved oxygen

The sensors used are calibrated internally both online and offline with a self-calibrate function. These sensors can communicate through 4 - 20 mA analogue signals or by using a Modbus protocol.

The sensor housing system is a truncated pyramid tank with internal supply. It has side overflows which help maintain a constant and stable level of water inside the tank without any air.

MULTI-DEPTH MEASUREMENT SYSTEM

Continental water (lakes, reservoirs...) is often depleted by the eutrophication phenomenon, which makes vital to automatically monitor the quality of reservoir water.

This is why SICE has developed a Multi-Depth Measurement System which is easy to integrate, robust, easy to configure and install, and able to measure water quality at different depths automatically in order to obtain profiles.

The system is based on a multi-parameter sensor with the ability to measure the following parameters: conductivity, temperature, pH, dissolved oxygen, turbidity, ammonium and nitrates.

This sensor is managed from a control system which is regulated by the positioning (depth) and frequency of measurements, as well as communication with the Control Centre, which can process the data which has been collected, create reports and even control the equipment remotely.