



# AUTOMATION AND CONTROL OF LINEAR HYDRAULIC INFRASTRUCTURES

Within the hydraulic infrastructure business sector, SICE provides engineering, construction, conservation, operation and maintenance services, as well as other highly qualified services resulting from extensive knowledge of these systems and long-lasting presence on these markets. Its activity is based on the Integral Water Cycle, including collection, treatment, purification and reuse of water, before finally returning it to its natural environment.

Within SICE's range of activities, it carries out "EPC" projects (engineering, procurement and construction), including remote command and control systems and automation of all processes for the transport and treatment of drinking, irrigation and waste water as part of the Integral Water Cycle.

The company contributes its staff's own knowledge and experience, built up over 25 years of experience on the market and applied to all areas, from the comprehensive design of control architecture to the supply and assembly of all hardware, on-site sensors, analysers, meters and PLC as well as the programming of the SCADA control system and the communications system.

## ADVANTAGES OF AUTOMATION

The automation of Hydraulic Infrastructures, which SICE offers as part of its portfolio, provides the following advantages:

- Real time supervision and control of infrastructures which ensures early breakdown detection and a rapid response.
- Reduction in both operational and maintenance costs and resources for the infrastructure.
- High reliability and security, provided by tailored infrastructures and facility designs.
- Communication systems of any type, adapted to each system, with the possibility of personalised wireless solutions which reduces the need for civil works and cabling.
- Automatic system operation which makes possible to respond appropriately to user requests.
- Implementation of hydraulic modelling tools which assist when making decisions.

## SPECIFIC FEATURES OF LINEAR PROJECTS

As part of the Automation and Control of linear infrastructures, which can include supply and distribution systems, irrigation channels, etc... there are two key points to carry out this kind of facilities:

**Power Supply Systems:** It is common with these systems that the system is not located near to the power supply system or for specific reasons it is necessary to ensure an emergency power supply, which makes it vitally important to install Uninterruptable Power Supplies (UPS) or photovoltaic systems.

**Communication systems:** Communication is vital for a project which involves the control and automation of a linear infrastructure where the regulation elements are found along the course of a channel and are separated by kilometres.

SICE has extensive experience in all types of communication system, whether wireless (satellite, radio frequency, Wimax, etc...) or cabled (copper or optic fiber).

**AUTOMATION SOLUTIONS**

SMART WATER – INTELLIGENT MANAGEMENT OF THE INTEGRAL WATER CYCLE

### Instrumentation

Collects the required information on the condition of the controlled infrastructure (level, flow rate, quality parameters, position of gates and valves, etc.).



### Electromechanical Elements

Equipment to regulate or move water such as valves, pumps, motors, regulation gates, etc.



### Power Supply

Allows proper operation of the systems, ensuring power supply at all times, with particular focus on photovoltaic systems and UPS.



### Remote Stations

Collect information from on-site equipment to send to the Control Centre. Control and regulate equipment such as pumps, valves, gates, etc.



### Communication Systems

Send data on the infrastructure's status to the Control Centre and send operating instructions to the remote stations.



### Control Centre

Manages the operation and maintenance of the hydraulic infrastructure through SCADA and other applications.



### Decision Support System

Thanks to modern hydraulic modelling tools, response strategies are improved in each situation.

