Level Pressure Flow Temperature Liquid Analysis Registration Systems Components Services Solutions

Water for irrigation

Transforming 100 000 hectares of arid land into fertileagricultural land with the potential to support around 20 000 farmers

The Project

In 2002, a massive irrigation project was undertaken in the southern part of Europe. The objective was to transform 100 000 hectares (1000 square kilometers) of arid land, typically capable of supporting only olive or almond trees, into fertile and diverse agricultural land with the potential to support around 20 000 farmers, thereby drastically improving the economy of the respective region in this southern European country.
The investment needed would be around EUR 1.6 billion, requiring an innovative collaboration between the regional government, a group of private investors and an imaginative future payment system for the farmers themselves.

The first phase of the project would be the construction of an 85 kilometer long canal, which would carry the 330 million cubic meters per year of water required for the scheme.
Phase two would be the construction of the local distribution infrastructures, comprising 17 pumping stations to collectively, but selectively, feed 43 regulation basins. Together these would hold the key to the balance and success of the whole scheme, ensuring the fair supply of the valuable water to all stakeholder farmers, and proper control of the upstream abstraction from the river. Project completion is due by 2013.

The Challenge

Each of the seventeen pumping stations requires a common-header discharge flowmeter, with line sizes up to DN 1200 (48"). While inline electromagnetic technology was the logical first choice, the cost of such large flowmeters presented a problem, and alternatives had to be considered. Endress+Hauser was involved in an early stage of the project with the aim of providing the best measurement solution.

The Solution

The question was whether to use an electromagnetic insertion flowmeter or Prosonic Flow from Endress+Hauser based on the ultrasonic transit time technology. The accuracy specifications for the Prosonic Flow clamp-on version, and those for an electromagnetic insertion meter from a competitor could be considered comparable, at ±2% of reading or better, but the Prosonic Flow clamp-on version requires fewer straight inlet and outlet runs.
Taking in account the easy installation and commissioning of the Prosonic Flow clamp-on version, which offered further cost benefits compared to electromagnetic insertion flowmeters, the decision was made in favor of the Prosonic Flow.
After successful field trials, it was clear that Prosonic Flow is the first choice for flow measurement for larger line sizes. The value proposition was clearly understood.

Endress+Hauser

People for Process Automation

Value proposition for Prosonic Flow clamp-on version

Easy installation and maintenance ...

The Prosonic flow clamp-on version is mounted on the outside of the pipe and therefore has no physical contact with the liquid in the pipe. This makes installation and maintenance much easier and faster, as it can be done at any time, without the need to shut down the operation. No cutting or welding of the existing pipework is required for the installation.
Moreover, the Prosonic Flow clamp-on technology needs shorter inlet and outlet pipe runs compared to electromagnetic insertion meters. This fact gives more freedom in choosing the best place for the installation of the flow meter.

... saves time and money

The river water used in the system will be totally raw, with the possible of suspend solids. Inline flowmeters would thus be highly prone to deposition and even permanent damage of the meter. This would require its removal andsubsequent maintenance. This can be prevented with the Prosonic Flow clamp-on version, mounted on the outside of the pipe.
All this helps to save time and money, for installation and maintenance.

Advantages at a glance

- **Best value for money**
  Unbeatable for large line sizes
- **One meter fits it all**
  Clamp-on scales perfectly to any line size from DN 15 (½") to DN 4000 (160")
- **Flexible concept**
  Measure another location, line size, liquid or pipe material with the same meter
- **Straightforward installation**
  No cutting or welding of the existing pipework
- **Low maintenance**
  Done from the outside without shutting down the operation
- **No degradation**
  No deposition on the sensor due to low quality or aggressive liquids

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