

Taking care
of the world's water



Water Technologies

Water Management with SIWA^{CIS} PLAN

Enables safe and efficient
water supply and wastewater
treatment

SIEMENS



SIWA^{CIS}
Completely Integrated Solutions
for the Water Industry

Industrial Sector Services	Industrial Sector Applications	IT Applications	Energy, Drives & Automation				
Water Quality	Supply and Transporta- tion	Mechanical Treatment	Biological Waste Treatment	Chemical/ Physical Treatment	Filtration	Disinfection	Treatment of Sewage Waste

Safe water supply and
wastewater treatment:

SIWA^{CIS} PLAN helps you
find efficient solutions



As a strong partner to the drinking water supply and wastewater treatment industry, we share your aims and understand your specific necessities: your top priorities are maximum safety of water supply and wastewater treatment, and efficient plant operation. Our SIWA^{CIS} PLAN water management system will support you in operating your networks to effectively meet your requirements. In the process, it will bring to light extensive potential for making economic and technical optimizations, which we will permanently tap for you. In this way, not only will the system pay for itself rapidly, but you will also gain a large measure of freedom to respond flexibly to future developments.

The optimization of operations with SIWA^{CIS} PLAN increases the quality of the services, providing multiple benefits: greater availability and longer service life of the network components, selective shutdown of sections for maintenance work, ecologically sound wastewater treatment, with no unnecessary wastewater discharges. With SIWA^{CIS} PLAN, we offer you a system of water and sewer network management modules from a single source:

Siemens Water Technologies.

SIWA^{CIS} PLAN's biggest advantage is its comprehensive range of functions and flexibility, allowing it to be used in almost any network.

SIWA^{CIS} PLAN offers you all the important functions you need for managing your network, such as: optimization, simulation, forecasting and leak monitoring. The modules are matched to one another and easy to use because of their standardized design. The plant layout is represented by means of predefined technology components.

More efficiency for your plants:
Cost advantages
with the SIWA^{CIS} PLAN
modules



Reducing operating costs:

Pump control with SIWA^{CIS} PLAN BEP

SIWA^{CIS} PLAN BEP (Best Efficiency Point) ensures extremely efficient energy use for the operation of pump stations in pipelines as well as in drinking water and wastewater networks. Mathematical optimization methods help to constantly operate pumps at their best efficiency points.

In new or modernized pump stations, when used together with further SIWA^{CIS} modules, it can achieve energy savings of 5 to 10 % over the lifetime of the system, which adds up to cost savings of several hundred thousand euro.

Knowing where the leaks are:

A watertight solution with SIWA^{CIS} PLAN LEAK

SIWA^{CIS} PLAN LEAK quickly and reliably detects and locates leaks in water and wastewater pipelines. Since SIWA^{CIS} PLAN LEAK is a modular add-on, it can be used on top of your present process automation, even if these are not Siemens products. This reduces costs for purchasing additional hardware.

SIWA^{CIS} PLAN LEAK uses intelligent evaluation to avoid unnecessary false alarms. Since there is no patent solution that can detect both large and small leaks at the same time, SIWA^{CIS} PLAN LEAK is also not based on only one analytical method, but uses a combination of different methods.

More efficiency for your plants:

Optimized operating plans with SIWA^{CIS} PLAN OPTIM

The SIWA^{CIS} PLAN OPTIM system assists in calculating the most economical operating schedules for all pumps and tanks in a water supply system. Because the reliability of the supply is the most important task, the system supports the operators in stable and efficient plant operation by providing a technology-oriented user interface. The plant operator still makes the decision as to what measures to take. Energy cost savings typically lie between 5 and 10 %.

Knowing what tomorrow will bring:

Operating forecasts with SIWA^{CIS} PLAN ADMIN

SIWA^{CIS} PLAN ADMIN is a forecasting module that lets you look into the future. It is important to know future consumption values as early as possible to make the correct decisions in good time. SIWA^{CIS} PLAN ADMIN supports you in predicting future water consumption.

As a perfectly matched add-on for SIWA^{CIS} PLAN OPTIM, it can preprocess input data for consumption or electricity tariffs extending over several days, and evaluate it from a variety of standpoints.

Know what will happen:

Minimizing risks with SIWA^{CIS} PLAN SIM

SIWA^{CIS} PLAN SIM (Simulation) is the ideal tool for evaluating different fault scenarios, various operating states or the interplay between hydraulics and automation systems "offline" in drinking water supply and wastewater treatment networks. It offers you a dynamic simulation that models both the hydraulics and the plant automation.

Within the model, you can realistically simulate all the processes to minimize risks to the actual plant even in extreme situations. The model is also flexible enough to allow perfect simulation of operating situations for new plants. In this way, SIWA^{CIS} PLAN SIM can also revolutionize the construction of new plants – with significant reductions in project times and increased quality as a result of comprehensive preliminary tests.

Practicing safety on the "real model":

Computer-aided training with SIWA^{CIS} PLAN TRAIN

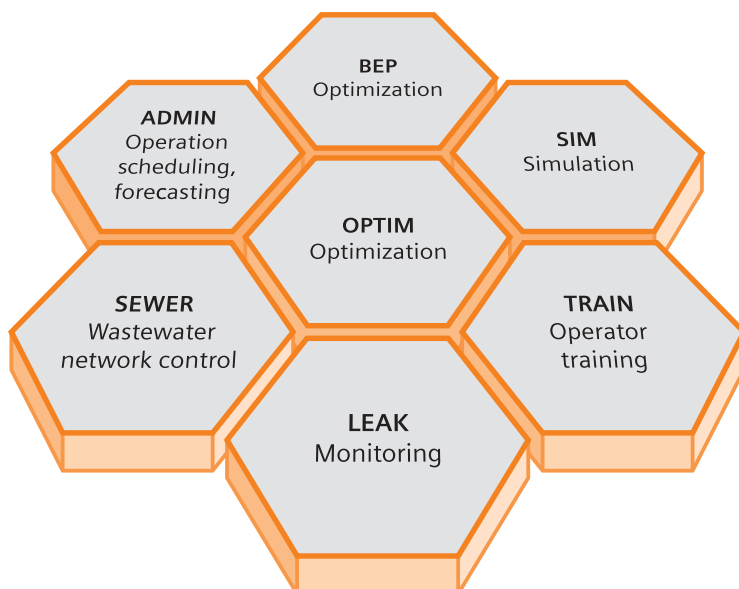
The SIWA^{CIS} PLAN TRAIN training simulator prepares the operators of water and wastewater pipelines and networks to handle a wide variety of plant conditions under extremely realistic conditions. The training system, which runs on a stand-alone computer, realistically simulates the interplay of hydraulics and process automation of your system. New personnel are trained rapidly and effectively, so they can rehearse extraordinary operating states before they actually occur, enhancing safety and avoiding all negative consequences for personnel or equipment.



Improved treatment capacity –
more efficient operation:

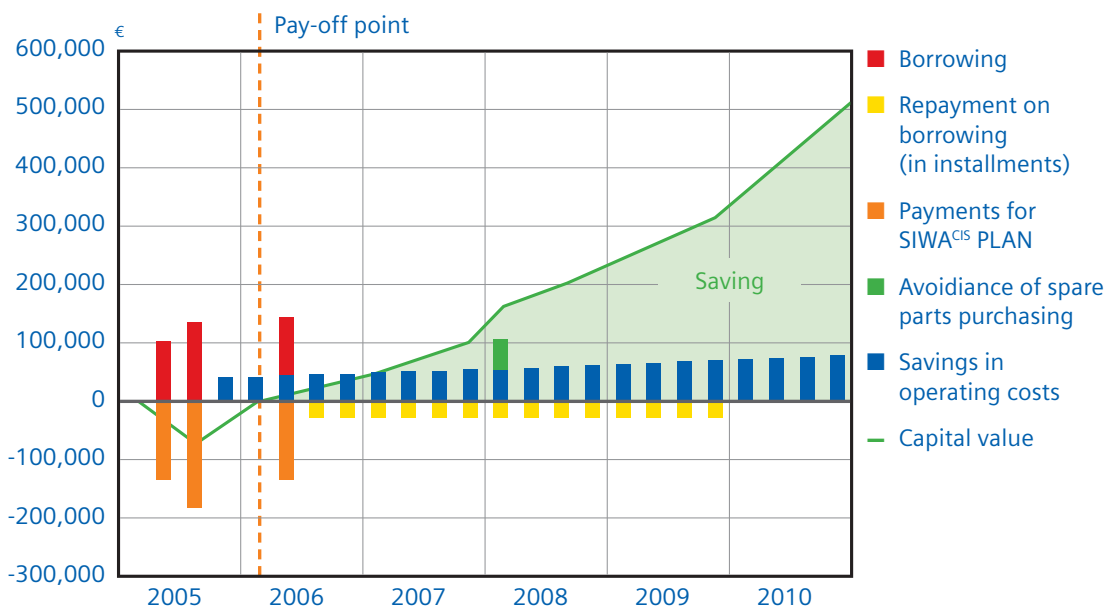
Sewer network control with SIWA^{CIS} PLAN SEWER

SIWA^{CIS} PLAN SEWER is the first wastewater-network control module to be fully integrated into Siemens SIMATIC PCS7/WIN CC process control system. At the same time, it is not restricted to this control system at all. SIWA^{CIS} PLAN SEWER gives you full control of the available capacities of your wastewater network. It uses a mathematical optimization model to calculate the optimum control interventions. When used in combination with further SIWA^{CIS} modules it permits complete automation of the wastewater network with obvious advantages for handling and cost control. You can use the extra scope that this gives you either to reduce pollutant discharges to natural waters or greatly reduce the investment costs for any construction measures planned.



A worthwhile investment:
SIWA^{CIS} PLAN – success
after just a short pay-off
time

Economic analyses for a major water supplier
Pay-off in less than 1.5 years



We open up alternative strategies for you to enable you to reach your business goals.

And, of course, economic efficiency is not left out of the equation. At the bottom line, investment budgets are limited and investments must pay off rapidly through improved performance, lower costs – or both. With SIWA^{CIS} PLAN, we overlay your existing process automation with a water management system that meets those targets. Investment you have already made will continue to be used – but more effectively.

“SIWA^{CIS} PLAN pays off!”

With a feasibility study, we will demonstrate to you that the investments in SIWA^{CIS} PLAN pay off rapidly.

For example, purchasing a motor accounts for only 3 % of its lifecycle costs, the rest comes from energy costs. This example demonstrates the starting point for minimizing lifecycle costs – optimization of system management.

SIWA^{CIS} PLAN can generally save between 5 and 8 % of operating costs by optimizing the running efficiency of pumps and tanks.

SIWA^{CIS} PLAN ensures that pumps always run at their optimum operating point. For large pump stations, savings may be as high as several hundred thousand euro over the lifetime of the plant.

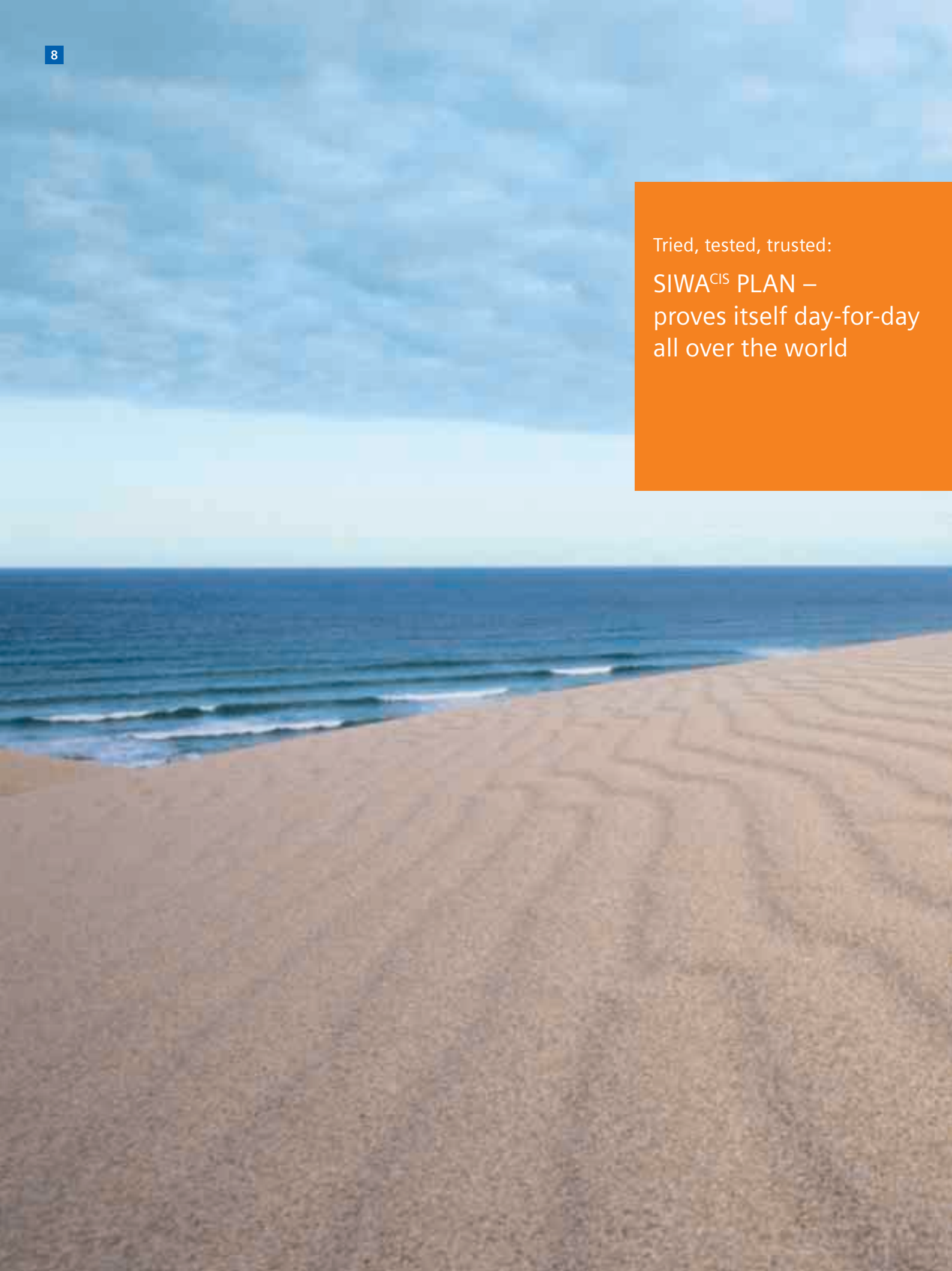
An example

The benefits can best be quantified by describing a specific example: SIWA^{CIS} PLAN was deployed by a long-distance water supplier delivering about 90 million cubic meters annually. Management of the nine waterworks, six high-level tanks and eight pumping stations poses extreme challenges to the operating staff. Over the last decade, they have developed a reliable operating routine based on many years of experience.

However, this fund of experience becomes less effective in the face of network expansions, increased supply volumes and variable electricity tariffs – an ideal case for SIWA^{CIS} PLAN.

By optimizing the operating characteristics, running costs could be reduced by € 150,000 per year – paying off the water management system in less than two years.





Tried, tested, trusted:
SIWA^{CIS} PLAN –
proves itself day-for-day
all over the world

Trust is good; references are better! With the strength of our international organization, we are your partner in the drinking water supply and wastewater treatment sector – at your side all over the world. Below is a small selection of applications that demonstrate what potential you could also gain by deploying SIWA^{CIS} PLAN. Inevitably, this selection can only show a small extract from our range of services and is no replacement for an individual analysis of your own challenges. We will be glad to help you with this! You can request free demos of our modules from water@siemens.com.

Water for the Emirates

The Fujairah water transmission line supplies 465,000 cubic meters/day of vital drinking water via a 180 km long double pipeline to Abu Dhabi and the northern Emirates. To ensure absolute security of supply, the operators depend on the SIWA^{CIS} PLAN OPTIM module. On the basis of the existing process automation, the module computes an optimized operating plan for all the pumps and tanks involved in the supply system. By computing cost-optimized pump schedules, SIWA^{CIS} PLAN OPTIM not only reduces operating costs, but also provides a number of advantages in plant performance:

- Increased reliability of supply through automatic operator support
- Increased plant reliability through early identification of irregular process states
- Improved plant availability by optimum planning of maintenance measures
- Best-practice sharing thanks to documentation of the plant operator's knowledge

Training before commissioning

The reliable and continuous operation of the Fujairah water transmission line required the use of a modern and efficient control system. The system's numerous semi-automated sequences of functions relieve the operators of carrying out error-prone routine actions, and thus increase system reliability. Our task was, through the use of SIWA^{CIS} PLAN TRAIN, to familiarize the personnel with the operation of the new process automation as quickly and efficiently as possible.

This stand-alone training simulator models not only the hydraulic behavior but also all important functions of the automation technology. This gives the operators confidence that the actions and decisions that they perform in the simulator will have the same effect as they would in the actual plant. The realistic replication of operator control is supported with faceplates of valves corresponding down to the last detail to those in the actual system. Our solution provided the particular advantage that training could be carried out completely before the system was commissioned, which greatly shortened the project length.

Sewer network control in Bavaria

To improve water quality, rainwater is also increasingly being handled in the treatment plants. That means a number of municipal authorities will have to make considerable investments in retention reservoirs in coming years. Investment in these retention basins can be minimized by exploiting the volume of the network.

The network under consideration currently comprises 70 such rainwater retention basins with a capacity of about 40,000 cubic meters, approx. 50 main inflows and a main pipeline network extending for some 260 km. A feasibility study was carried out using SIWA^{CIS} PLAN SEWER to optimize already-scheduled building work – with impressive results!

The most sensitive points in the network were identified. Existing basins are now being better utilized, so that 15 % of the originally planned building volume can be dispensed with. At the same time, the volume of wastewater discharged to the outfall can be appreciably reduced with the aid of the control algorithms of SIWA^{CIS} PLAN SEWER. This can make effective use of the tight investment budget.



The SIWA^{CIS} Product Family
The right response
to any challenge in
the water industry

We leave nothing to chance where water is concerned. It goes without saying that we do everything to optimize processes, technologies and systems.

Our goal is to ensure safe and reliable operation of your plants and improved cost effectiveness in performance. Our answer is Completely Integrated Solutions within the tried-and-tested, powerful SIWA^{CIS} PLAN product family.

That is because our SIWA^{CIS} products, individually, or at best in combination with other components of the product family, open up numerous synergies and optimization possibilities at every phase. Here are some examples:



SIWA^{CIS} PUMP
for new pump stations or modernizations.

The modular package solution comprises instrumentation, automation, power engineering and drive technology, together with the associated lifecycle services, with the aim of optimizing performance throughout the entire lifecycle. Add-on modules such as SIWA^{CIS} PLAN BEP, which uses mathematical optimization to optimize the efficiencies of your pump systems, provide further increases in the cost effectiveness and reliability of your pump stations.



SIWA^{CIS} PIPE
monitors and optimizes drinking water transport from source to distribution.

It integrates all modules and plant components, from measurement technology and quality control to energy supply, from simulation to automation, from drive technology to services, and improves their performance and economy. The add-on module SIWA^{CIS} PLAN LEAK reliably detects and locates even the smallest leaks, allowing you to respond quickly to faults and make considerable savings.



SIWA^{CIS} NET
gives you a comprehensive overview of all aspects of your distribution network, with precisely defined interfaces from field level to management level.

SIWA^{CIS} NET intelligently links together automation, instrumentation and control technology – the integration of management systems permits optimization of the plants and helps you to tap a significant cost-savings potential. In combination with SIWA^{CIS} PLAN OPTIM, the use of innovative optimization methods provides efficiency increases in the double-digit range.

For further information
and to contact someone
in your vicinity,
please see our website:
www.siemens.com/water

SIMATIC, WinCC and PCS7 are registered trademarks of Siemens AG. Other designations used in this publication may be trademarks whose use by third parties for their own purposes could violate the rights of the owners.

The information provided in this brochure contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

Siemens Aktiengesellschaft
© Siemens AG 2005. All Rights Reserved
SIWA^{CS} is a registered trademark of Siemens AG.
CIS = Completely Integrated Solutions

Order No. E10001-P18-A34-V1-7600
Printed in Germany
Dispo No.: 21617 K-No.: 37800
TH CIPWAT520M14 WS 09052.
Subject to change without prior notice