



SCADA/Process Control System and Telecontrol System

for waste water plants and sewage systems
for water suppliers and networks



Process Control



Telecontrol



Automation Technology

AQASYS™ – the reliable system for your plant and network

▶ The comprehensive solution that integrates with other devices (e.g. PLCs).

▶ Intuitive usability, easy and fast adaptation without programming skills.

▶ Flexible access on desktop PC, on the internet and on HMI touchpanels with automatic synchronization.

▶ Full web capability (pure web technology, HTML5) with module 'webclient' optimized for touch gestures on mobile devices (i.e. smartphones, tablets).

▶ Unique security features in terms of operations, data, alarming and IT with optional MIP process server.

▶ The system for intelligent cross-communication and smart control of your plant facilitating your daily work.

AQASYS™ Process Control and Telecontrol System from SCHRAML specifically focusses on the requirements of waste water plants, sewage systems, fresh water suppliers and water networks. With AQASYS™ you can monitor all processes. You will be reliably alerted in case of disturbed operations. You can efficiently control and monitor your plant's and network's operations, based on graphics, reports and analysis from all measured values created by AQASYS™. You can achieve high operational security and smooth plant control.

Waste water companies react faster on incidents or on heavy rainfalls and fluctuations of waste water load. You can constantly control the status of your plant and monitor special buildings such as rain overflow tanks and pumps.

For **water suppliers** AQASYS™ increases the security of water supply and reduces water losses. Water collection and treatment, pressures in distribution networks and delivery to water consumers are consistently monitored and controlled with AQASYS™.

Open and flexible

AQASYS™ is a modular process control system that allows coupling of PLC devices from all suppliers. It therefore perfectly fits all requirements of small as well as large plants. With AQASYS™ your control center is always with you: on the desktop computer in your plant, on the switch cabinet panel or via web access on your mobile tablet computer or smartphone.

Intuitive process visualization for optimized monitoring

Buy or rent

Depending on your investment plans, you choose to either buy (on-premise) or rent (hosting) an AQASYS™ user license.

HMI Touchpanel



Tablet/Smartphone



PC

AQASYS™ software for waste water and fresh water companies

AQASYS™ process and telecontrol system is a standard software that maps the entire functionality required for operating your plant and network. It is easy to use and requires no programming skills to carry out adaptations during normal operations. For instance, users can easily adapt threshold values, alerts, remote alarming plans, hydrographs or reports on their own.

Key features in AQASYS™:

- ▶ **Visualization:** Thanks to clearly structured process images you always oversee your plant at a glance. With one mouse click on the intelligent context menus in the visualization chart you can jump directly to the corresponding function, e.g. change configuration, show graphs etc. Furthermore, with a HMI touchpanel you have an emergency operation system at your disposal. AQASYS™ Webclient enables you to access the system via mobile devices such as smartphones and tablets.
- ▶ **Remote alarms:** You can accurately define alert plans and methods (e.g. speech, text messages, e-mails) and prioritize all alerts according to your requirements. Hence, only relevant incidents of emergency trigger your alarms. Unnecessary alarming actions can be avoided.
- ▶ **Flexible data transmission and archiving:** Measured values and alarm messages can be tracked, securely stored, transferred to the central process control system and analyzed in freely selectable time intervals. Due to comprehensive archiving options all values are at your disposal for an arbitrarily time period. This allows even multi-year comparisons.
- ▶ **Control:** You can fully control all plant components with AQASYS™, both central and remote units. Furthermore, telecontrol stations can also communicate directly with each other via an intelligent automatic cross-communication.
- ▶ **Hydrographs and diagrams:** Visually compelling graphical formats are the starting point for analytics and plausibility checks at any time and for each arbitrary time period.
- ▶ **Reports:** You have literally limitless options to create reports and protocols in AQASYS™. The system provides a choice of predefined standard reports. In addition, the highly flexible analysis functionality of AQASYS™ enables you to create and dynamically adapt any report from all available data.
- ▶ **Maintenance management:** With this AQASYS™ module you are always completely informed on maintenance intervals, schedules and deadlines of all machines and devices in your plant. All technical information, such as machine data sheets and instruction manuals, are accessible on one mouse click.

Graphical visualization of trends



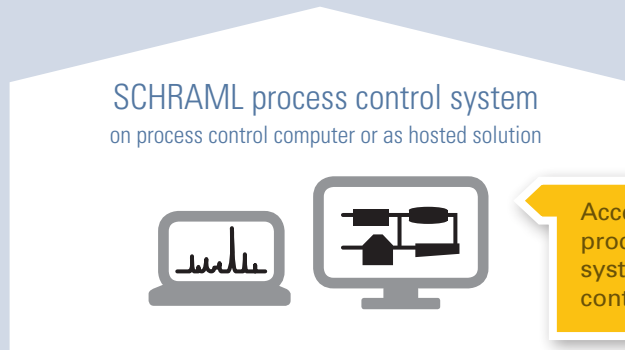
Highly flexible reports

Waste water and fresh water specific functions, such as rain tank protocols or pipe leakage identification

Process control in central plant

Control center

- process monitoring
- visualization
- alarming
- controlling
- process analysis
- hydrographs, trends, graphics
- protocolling
- maintenance management



SCHRAML MIP process server (optional)



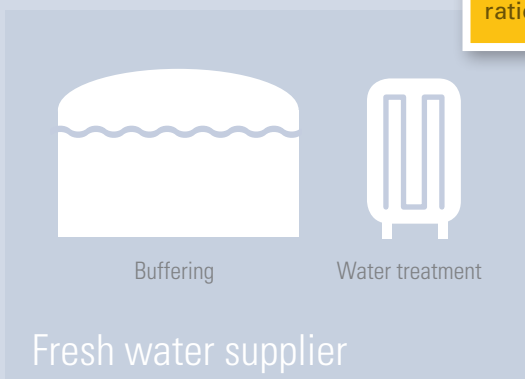
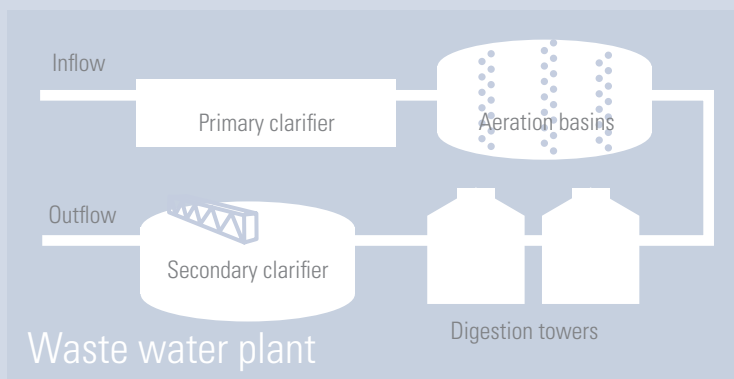
Programmable logic controller (PLC)



SCHRAML HMI Touchpanel

All suppliers (e.g. SIEMENS, Wago, Phoenix Contact, SCHRAML, ...)
All coupling methods: native drivers / OPC / IEC 60870-5-104

On-site visualization and emergency operations system



→ The SCHRAML MIP guarantees all critical tasks of your plant.

Breakdown of the central process control computer:

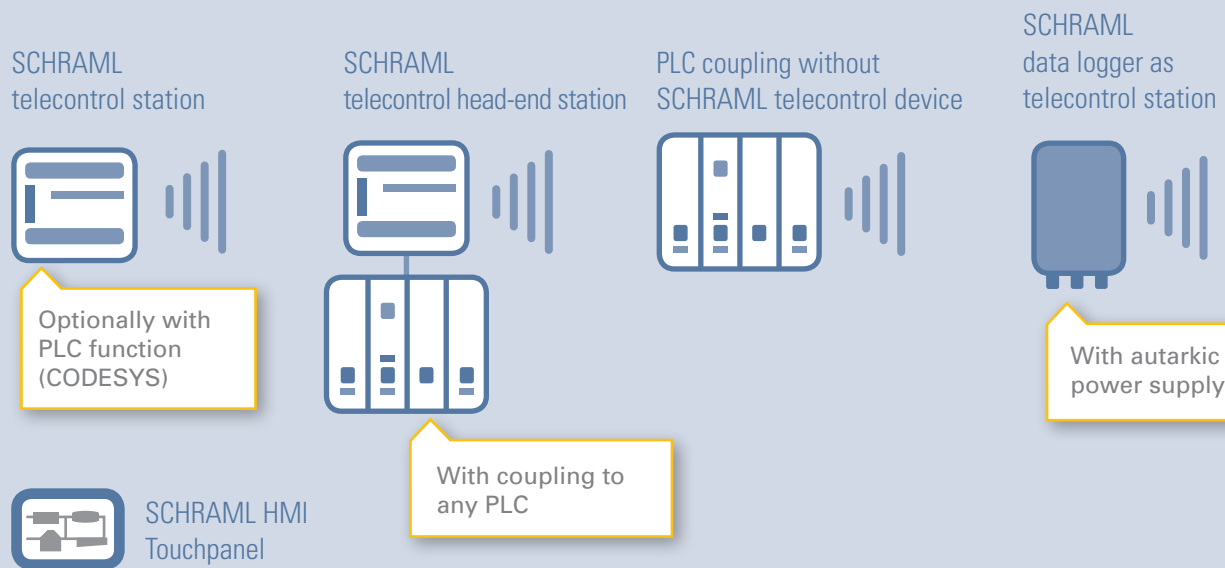
- ▶ **Secure control and handling (HMI)** of the plant by the MIP process server for failure-free operations
- ▶ **Reliable alarming**
- ▶ **Secure storage and processing** of all measured values and alerts in the MIP

Increased IT security

- ▶ **Protection of automation** against unauthorized access and malware through clear segmentation of office and automation networks

Telecontrol in remote stations

Device models



Remote locations with telecontrol technology

All data transmission ways: GPRS, LTE, DSL, LAN, leased line, radio...



Sewer system



Pump stations



Elevated tanks



Wells, sources

Sewage system



Rain overflow basin



Stilling wells

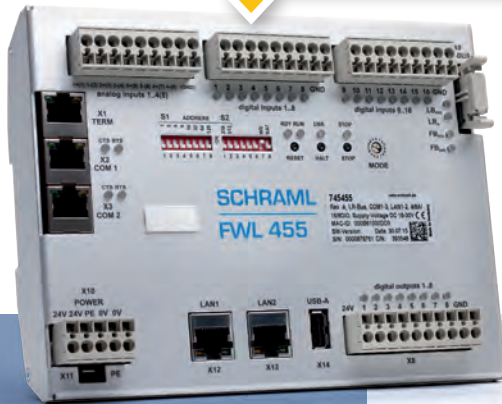
Fresh water network

SCHRAML remote control system

- ▶ **Reliable, secure, and high-resolution data recording** (smallest time intervals) with on-site data storage even during longer interruption of data transmission
- ▶ **Process and remote control as integral system:** You can perform controlling interventions for telecontrol stations directly from the central process control system (SCADA). Furthermore, changes in the process control parametrization are automatically synchronized towards the relevant telecontrol station.
- ▶ By means of **direct cross-communication** between the telecontrol stations, the process control of the whole network can be maintained even at a longer interruption of the SCADA system.

SCHRAML telecontrol stations

SCHRAML FWL 455 telecontrol station (optionally with PLC functionality; CODESYS)



SCHRAML FWL 454 telecontrol station for PLC coupling



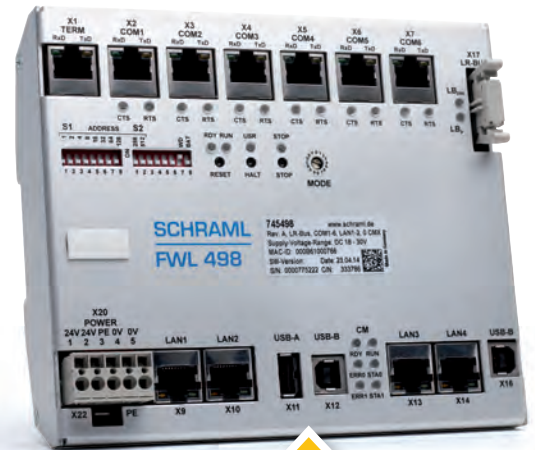
SCHRAML telecontrol stations are the ideal supplement for the AQASYS™ process control system fulfilling the specific requirements of fresh water and waste water companies:

They are extremely reliable, robust and durable.

The MIP process server provides critical infrastructure companies with a high reliability even at breakdown of the central process control (SCADA) computer/server or downtime of the hosted process control system.

SCHRAML telecontrol stations can be either used as complete solution with integrated PLC functionality or also be seamlessly coupled with already existing PLC infrastructure.

For the specific usage in fresh water and waste water networks, SCHRAML autarkic data loggers FWD with remote data transmission are the ideal choice.



SCHRAML MIP FWL 498 process server



Autarkic SCHRAML data logger FWD with remote transmission

Management of an ozone plant at WTA Avercap, a paper and pulp mill production site, São Paulo, Brazil

Plant: Ozone plant for pulp treatment. With the close control and management of the plant by means of the SCHRAML SCADA solution, chlorine dioxide consumption can be decreased for environmental protection.

Installed system: AQASYS™ process control system with remote alarming, operational journals and reports. SCHRAML MIP process server for guaranteeing all critical tasks of the plant even if SCADA server system is not working.

System access: via 3 PCs in the control center in the plant

Groundwater management for the construction of the new metro line “Cityringen” in Copenhagen, Denmark

Construction site: Highly complex infrastructure project with 15.5 km of tunnel construction and 21 metro station shafts straight through the historical center of Copenhagen. The groundwater level has to be kept stable to avoid damages of the harbor region houses which are built on poles. An intelligent groundwater management solution constantly measures the water levels at more than 600 positions in the vicinity of the construction site. If the level falls too low, reprocessed groundwater is fed back into the aquifer.

Remote stations: About 600 autarkic data loggers FWD from SCHRAML constantly measure water levels in high resolution and transmit the data to the AQASYS™ process control system. PLCs in 21 local shaft construction sites automatically control the well pumps and water treatment and infiltration plants. SCHRAML remote control stations installed at these sites safely store the PLC data and transfer them via UMTS to the central process control server. The machinery can be controlled directly by the AQASYS™ process control system by means of target values, for instance for the groundwater level reduction.

Installed system: AQASYS™ process control and telecontrol system with modules: remote alarming, Webclient, operational journals and reports, Report Designer, AniMMeX Evolution process image editor

System access: via PCs in the control center and on the local construction sites and remote via Webclient on tablets and smartphones directly on the construction site and for standby staff.

“The SCHRAML SCADA system was recommended to us many years ago by Xylem, the company building our ozone treatment plant. At this time we intended to install a highly reliable state-of-the-art technology solution especially for pulp and paper mill treatment requirements. We were quickly convinced of SCHRAML’s huge expertise and innovative products. “Made in Germany” was also a compelling reason for our decision for SCHRAML. From the very beginning of its implementation we are benefitting from the full spectrum of the solution which is nevertheless easy to use. We can count on it every single day, which is very important for WTA Avercap for a smooth production and the protection of the environment.”

Marcos Alexandre Torres,
head of processes and maintenance
at WTA Avercap Brasil

“The intelligent groundwater management of Hölscher Wasserbau has stand the test since its launch in 2012. It guarantees a stable and secure groundwater supply in this challenging infrastructure project. The tolerances in groundwater levels at the huge Copenhagen construction site are in the range of centimeters. This could be achieved by the reliable, state-of-the-art process and remote control system from SCHRAML enabling a precise remote monitoring of the numerous level measurement stations and a secure control of the dynamically changing plant components.”

Manfred Schnieders,
engineer in charge from Hölscher
Wasserbau/Germany, the assigned
groundwater management
company for the Copenhagen
Cityringen metroline

SCHRAML



"We attach great importance on direct customer contact. We support plant operators, system integrators and engineering firms with experienced technical personnel – process engineers, electronic engineers and software specialists – on-site and on the phone, during installation and in everyday operations, where and whenever they need us."

(Dr. Stephanie Kauf-Schraml and Dr. Tobias Kauf, second generation of entrepreneurs at SCHRAML)

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SCHRAML – Technology for a sustainable future of water

SCHRAML has specialized on fresh and waste water treatment companies, on environmental economy and infrastructure plants for more than 30 years. As a family-owned company, we see it as our mission to develop solutions for a highly efficient drinking water supply as well as for energy and environmentally friendly waste water treatment. Thereby we contribute to a sustainable usage of the precious resource of water and to the protection of the environment and human beings.



- ▶ More than 2,000 AQASYS™ installations, over 15,000 telecontrol stations
- ▶ Active participation in research projects and associations