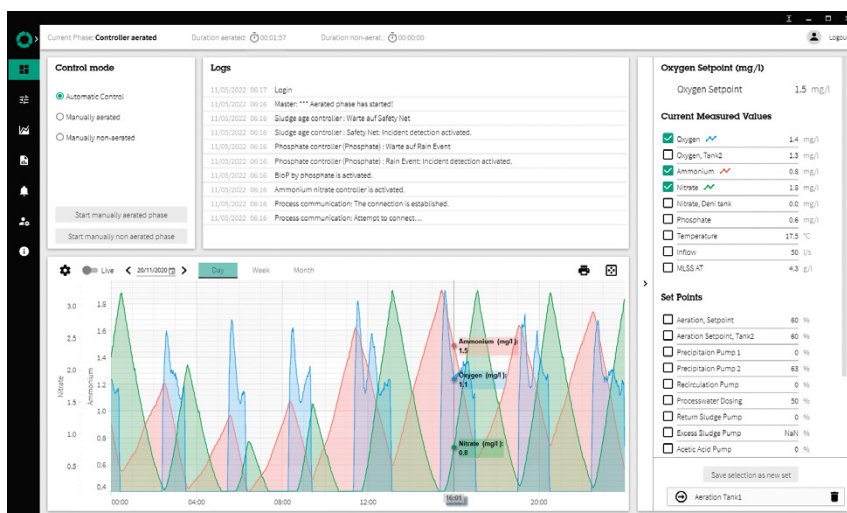


A brand of
Aqseptence Group

Passavant® Process Efficiency Aqualogic®

Your controller for safe and reliable operation of sewage treatment plants.



Aqualogic® controls all processes relating to the biological stage based on need of your sewage treatment plant. By recording and evaluating various measured values such as oxygen, ammonium, nitrate and temperature, Aqualogic® permanently calculates and monitors the load, hydraulics and the process environment. It controls all available aggregates so that optimum wastewater treatment is always achieved - with simultaneously low energy and operating costs.

Benefits

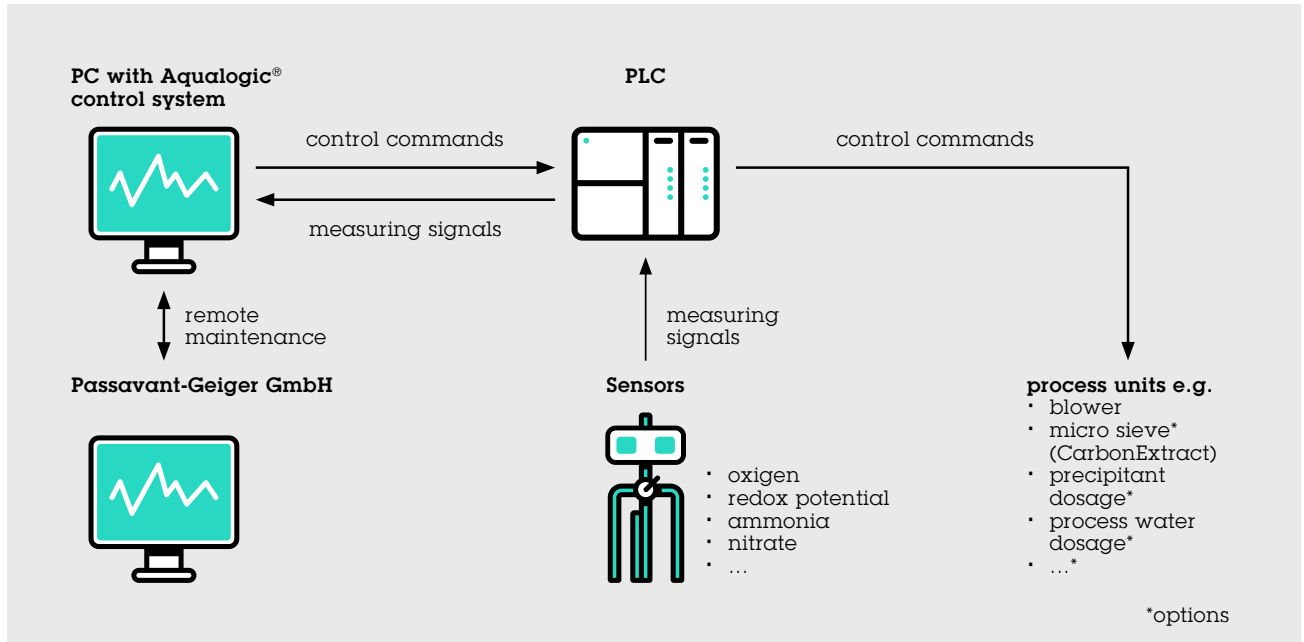
- **Optimum cleaning performance** – e.g. reduction total nitrogen (plant outflow) on average of approximately 40 %*
- **High energy efficiency** – up to 20 % energy savings*
- **Maximum operational safety** through safety nets
- **Fuzzy Logic:** The control is very stable - even when processing many measured values - and therefore does not tend to oscillate
- Control of the **P-precipitation possible without an analyzer**
- **Very quick installation** and modification of the controller while the system is in operation
- **Full operator access** to settings
- **Modularly expandable** (e.g. precipitation, sludge age, process water, pressure control) or according to customer requirements
- **Manufacturer-independent** with regard to probes, transmitters, PLC and aggregates
- **Customer support** by phone, online and on site
- **Alarm function** via SMS/e-mail optional

* Some of the measures are not limited to the installation of Aqualogic®, but also include the replacement of aggregates or diffusers

Functions

Within 25 years, Aqualogic® has been installed on around 400 sewage treatment plants. Considering the design capacity, the wastewater from more than 5 million inhabitants is cleaned by Aqualogic®. With Aqualogic® it is possible to make

use of complex process engineering expertise and user knowledge for biological wastewater treatment and thus to optimally operate the biological treatment of a sewage treatment plant in all situations.



Aqualogic® installation scheme

Aqualogic® is software that runs on a Microsoft Windows PC and communicates with the PLC via an OPC server. An emergency program is optionally available on the PLC as a backup. Alternatively, Aqualogic® can be installed on an on-site PC/server and integrated into the existing automation of the sewage treatment plant.

The specific feature of Aqualogic® is that it is based on Fuzzy Logic, a method based on human thinking that is ideally suited for controlling complex biological cleaning processes. As a result, the controller can process any number of input variables simultaneously and runs very stable (no oscillation). By using Fuzzy Logic, it is possible to optimally coordinate the various sub-processes of the aeration by using a higher-level control, so that all cleaning steps run at the best possible rate.

The installation is implemented quickly. In contrast to purely PLC-based controls, Aqualogic® can be flexibly adapted to changing needs without programming at any time. The controller settings are adjusted and optimized during operation – if necessary with the support of our employees by telephone or remote maintenance.

Aqualogic® is constantly being further developed in a customer-oriented manner. The program updates can be installed via remote control. Aqualogic® runs indefinitely (no annual licenses or similar).

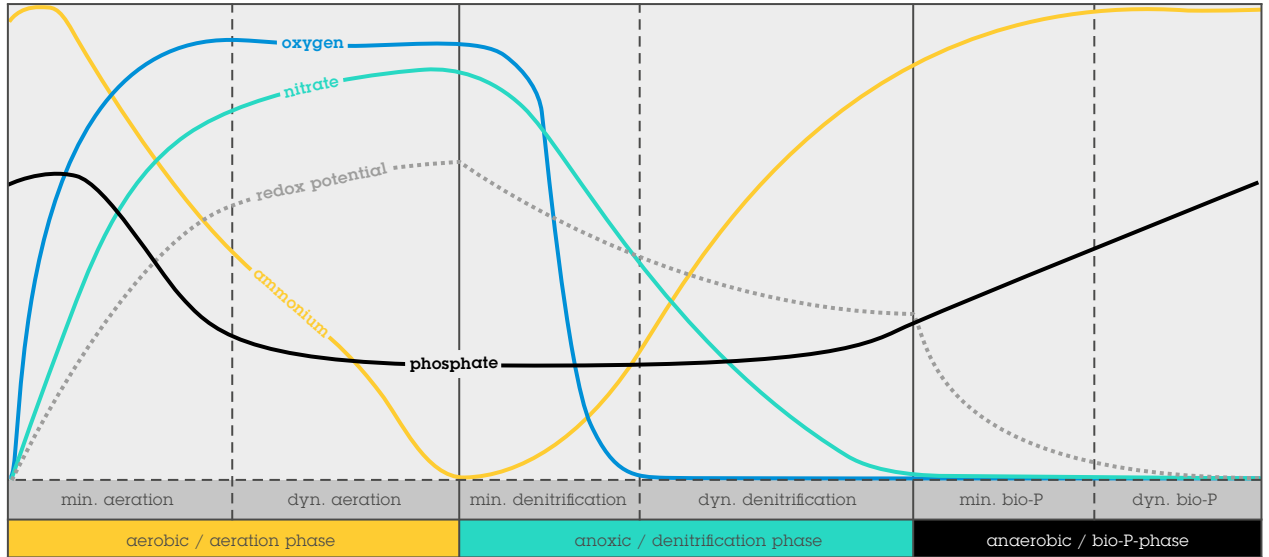
You have the choice: If you want comprehensive support and security, use our services, which we offer in several variants – but there is no obligation to use the services.

Our sales employees are also available for after-sales-service and training of operational staff.

Usage & areas of application

Sewage treatment plants with activated sludge treatment can be equipped and optimized with Aqualogic®, regardless of the type of aeration and size. This also applies to special plant types, such as cascade denitrification or SBR plants. In addition, unused basins can be managed tempo-

rarily and oversized primary treatments can be partially bypassed. Shock loads are mitigated by detecting peak loads and rain events. Furthermore, a needs-based dosing of process water is possible, whereby the aeration tank is not overloaded.



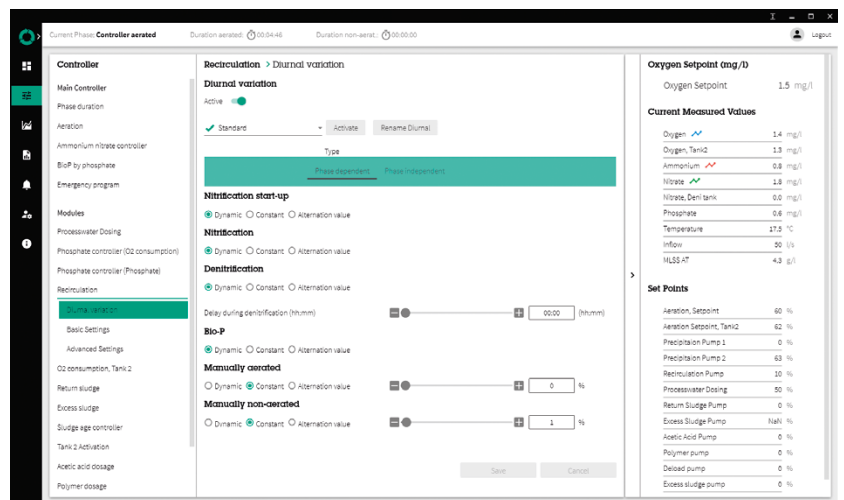
Examples of measurement parameters used by Aqualogic® to control the biological cleaning process. (here in intermittent operation with Bio-P) In addition, the dynamics of the phase lengths are shown.

No black box – always clear and transparent.

Aqualogic® is designed for clarity and good operability. The display is limited to the necessary measured and manipulated variables and important messages. Normally, intervention is not required.

However, should an unusual situation arise in which the controller settings have to be adjusted, the user can do this by using numerous input options in the program interface.

Aqualogic® settings (example)



Performance data & saving potential

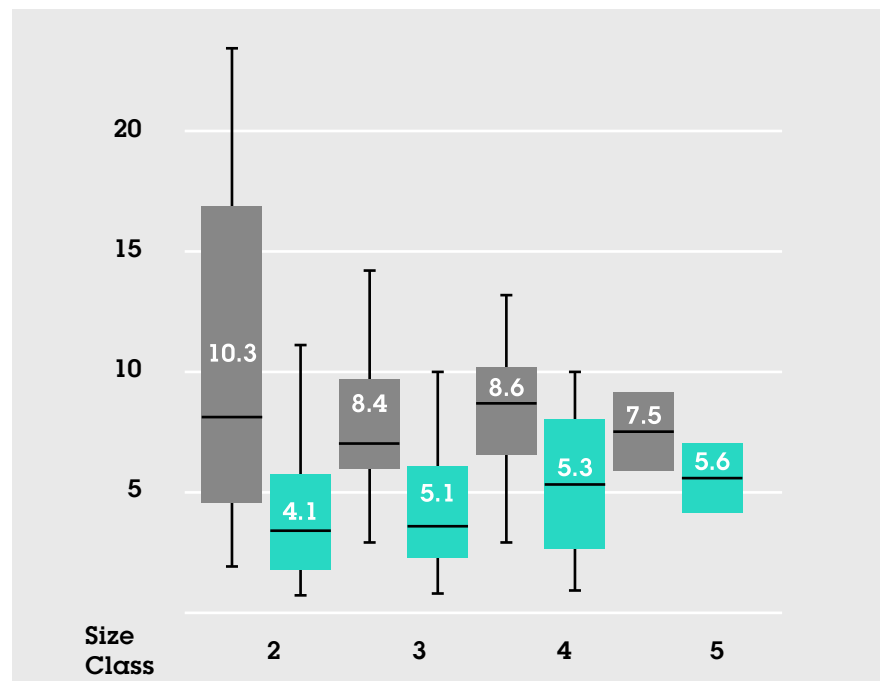
Before an installation of the Aqualogic® control system, a detailed and free of charge procedural analysis of the sewage treatment plant takes place. Target-oriented and coordinated measures for the optimization of the sewage treatment plant will be worked out with regard to

effluent values, operational stability and efficiency in cooperation with the operator. The installation of Aqualogic® can very often be funded by increasing the cleaning performance and improving the energy efficiency through state funding opportunities.

Safety First – everything for safe plant operation

Safety nets can be defined for each extension module of the controller system to respond to extreme events (e.g. heavy rain or shock loads) to be able to

react quickly. The user can specify relevant plant conditions in which alarms are sent out as SMS and/or email.



Improvement of the effluent values: Presentation of total nitrogen effluent values [mg/l] of some sewage treatment plants (grouped by size class) before and after installation of Aqualogic®. The numerical values show the mean values.



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The technical data stated in this brochure are indicative only and have to be determined for each individual case. Reserve technical changes.