aquacomputer

EXPERTS IN WATER COOLING SINCE 2001

aquastream

ULTIMATE

SUPER SILENT PUMP TECHNOLOGY

The ultimate pump system

www.aqua-computer.de

MADE IN GERMANY

aquastream ULTIMATE

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AQUASTREAM

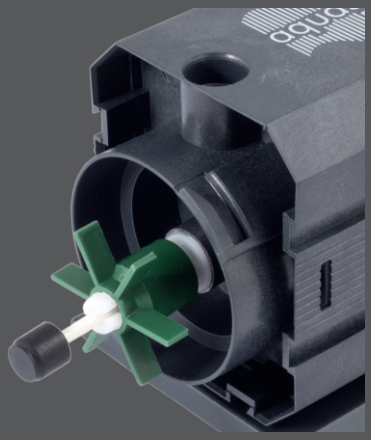
Since its market introduction in 2003, the name „aquastream“ stands for reliable and durable water cooling pump technology - made in Germany.

We have bundled all our experience and in addition we have added many wishes of our customers to form a masterpiece of german engineering.
Our focus during development of this new pump was to achieve maximum quality.
Driven by this desire, nearly every part of this pump is produced in Germany and has been precisely selected for maximum durability.

With the introduction of the new aquastream ULTIMATE, we have raised the technological level in the water cooling pump market to a new level. There is no other pump in this market like the aquastream ULTIMATE.

For the next years, we will still keep on developing the software to make it even better.

PUMP DRIVE



The pump is the heart of any water cooling system. If the pump fails, the complete system fails.

For the aquastream ULTIMATE we are using a bearing system made from highest quality ceramics with an life expectancy of more than 10 years of permanent use.
To reduce vibrations, the bearing system is decoupled in rubber bearings. The ample length of the bearing system results in smooth operation of the pump drive.

Every material that is used has been selected for high strength and lifetime.

The motor parameters are monitored 20,000 times a second. Based on this data, the motor control of the pump is optimized to reduce vibrations and to achieve a nearly noiseless operation.

Our new digital motor control system provides some great functions. For example, the motor controller can now find the maximum motor speed in real time without pump restarts.

ELECTRONICS

The control system of the aquastream ULTIMATE is based on a 32-bit microcontroller with integrated DSP that provides an even higher performance than the aquaero 6 MCU!
A multi-layer PCB with very small structures enables us to integrate all components in the small pump housing.

A native USB 2.0 interface connects the aquastream ULTIMATE to your PC. With our aquasuite software all functions of the pump can be controlled and monitored. In addition, software updates can be performed using the aquasuite software.

Nearly every function of the pump can also be controlled directly at the unit by using the well structured menu on the 128x64 pixels OLED display. The menu is very smart and shows you a preview of the selected value at the bottom line in many cases.
The aquabus interface connects the pump to the powerful aquaero control system (aquaero 5 and higher).

An integrated buzzer can be enabled for customized alarm levels (water temperature etc.).

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SENSORS

The aquastream ULTIMATE features an integrated water temperature sensor. In addition, an external temperature sensor can be connected to the pump. If an Aqua Computer flow sensor is connected to the unit, it is possible to monitor the flow rate of the system.

An extended alarm management with acoustic and optical alarms is integrated in the aquastream ULTIMATE. It also provides two options to shut down a PC in case of an emergency: The first is the generation of a virtual fan tacho signal. The signal can be disabled in case of an alarm and the connected mother board can shut down the PC.
The second solution is to connect the aquastream ULTIMATE to your power switch with an optional cable. In this case, the power switch can be controlled by the pump.

But there are many more sensors in the aquastream ULTIMATE: The current load and voltage of the pump motor is measured and the power consumption is calculated. The same is applicable for connected fans. The torque of the fan is calculated as well.

CONTROLLER

Providing more features than any other pump in the market, the aquastream ULTIMATE can additionally control a group of fans with a total current load of max. 1 A (a peak current of up to 1.5 A at start-up is allowed).

The device is able to control PWM (4-pin) and voltage controlled (3-pin) fans. The fan amplifier circuit is an advancement of the aquaero 6 amplifier design and provides an even higher efficiency.

We have added many functions to improve the reliability of the fan controller: It provides short circuit, over current, over temperature and over voltage protection.
In interaction with the integrated water temperature sensor, the fan controller is able to adjust the fans without any additional components. After setting a target value for the water temperature, the aquastream ULTIMATE will do everything that is necessary to maintain this value.

The RPM signal of the fans can be monitored by the aquastream ULTIMATE.

THE ENSEMBLE

In the end the ensemble counts: The aquastream ULTIMATE combines a pump, advanced sensor technology and a great controller to a wonderful product. If you use this product, you will notice how seamlessly all functions will interact with each other.

After adding an aquainlet reservoir, you will only need to buy a radiator and water blocks to complete your system.

As if by magic, the pump motor and the fans will be controlled by the current load of your system. Flow, temperatures, fan rpm - everything can be monitored and can raise optical or acoustic alarms. Your PC is protected against damages and in an ermergency, the aquastream ULTIMATE can shut down your PC for protection.

Just enjoy this ultimate solution!

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OPTIONEN

VIRTUAL FLOW

During the development of the aquastream ULTIMATE, we put a lot of effort in a wonderful new function: The virtual flow sensor.

We provide this function as a software extension that can bought separately. After purchase of this option, the aquastream ULTIMATE is able to calculate the flow rate from complex calculations based on the real-time monitoring of pump parameters.

The virtual flow sensor can be used to ensure that a sufficient flow rate is maintained in the water cooling system. In case of a failure, an alarm can be triggered.

Limitations of the virtual flow sensor: The accuracy of this function is not equivalent to a real flow sensor and it can only be used if the aquastream ULTIMATE is the only pump in the circuit. If more than one pump is installed, a real flow sensor has to be used.

CONTROLLERS

Another great upgrade we can offer is the advanced controller package.
If you purchase this option, additional controllers will be unlocked. In addition to the target value controller, the fans can be controlled by a curve controller or a two-point controller. The curve controller allows the user to set up a relation between temperature value and target fan power in a simple graphical curve.
The two-point controller allows to switch the fan output at user definable temperature values.

Another controller included in this package enables the aquastream ULTIMATE to control the pump speed in relation to a temperature value. It enables the pump to automatically speed up the pump motor at rising water temperature and thereby increasing the flow in the system.

The last component of the package is an option to directly control the flow of your system. Simply set a target value for the flow and the aquastream ULTIMATE will control the pump speed to match the value. This function can also be used with the virtual flow sensor option!

UPGRADE

Longevity and reliability - that is our goal. In times of many environmental problems, we would like to go ahead with good practice. This is why our very first CPU water block cuplex (released in 2001) can still be converted to the latest CPU sockets and we are providing all necessary spare parts to do it: A long-lasting product is the best way to protect the environment.

In order to do so, we remain true to this idea:
Any aquastream pump shipped since 2003 can easily be upgraded. In case of the aquastream XT series, only the controller of the aquastream XT has to be exchanged with the aquastream ULTIMATE controller to perform this upgrade. We have added user-friendly clamp contacts to the new controller, so the exchange can be performed without soldering and is generally done in less than 2 minutes.
In many cases the upgrade can be performed without draining the cooling loop.

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COMPARISON CHART

Feature	Standard	Advanced	Ultra	ULTIMATE
Manual pump speed control	●	●	●	●
Automatic pump speed adjustment	●	●	●	●
USB and aquabus interface	●	●	●	●
Deaeration mode	●	●	●	●
Rotation detection	●	●	●	●
Configurable speed signal output	●	●	●	●
Adjustable fan output		●	●	●
Internal water temperature sensor			●	●
External temperature sensor connector			●	●
Temperature controlled fan output			●	●
Connector for optional flow sensor			●	●
Real-time pump speed adaption				●
Graphic OLED display, 128x64 pixels				●
User Interface with smart menu				●
High power, high efficiency 1 A fan output				●
Automatic power consumption reduction				●

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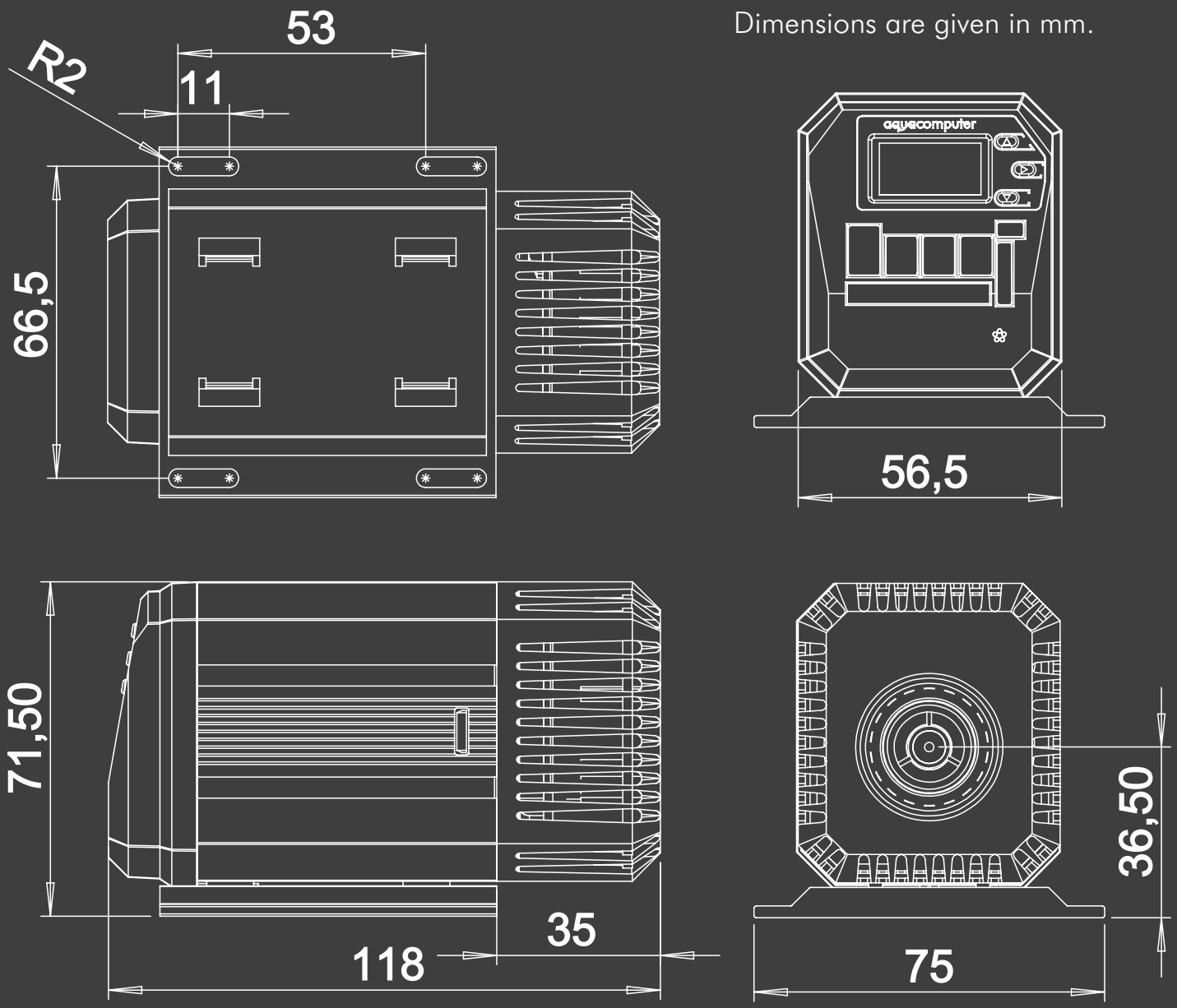
DIMENSIONS

Dimensions are given in mm.



TECHNICAL DATA

SUPPLY VOLTAGE	12 V DC
POWER CONSUMPTION	3-25 W
MAXIMUM PRESSURE	445 mbar
WATER TEMPERATURE	0-50 °C

FLUID	recommended: DP Ultra water, max. 30 % glycol
FAN OUTPUT CURRENT	max. 1 A
DISPLAY	white OLED display 128x64 pixels

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