

Owner's manual for the tubemeter™

Dear customer,

we thank you for the purchase of a tubemeter™. With this highly developed USB- and aquabus liquid level sensor you are receiving a dependable controlling device to monitor an important system parameter of your water cooling. Changes in the liquid level can now be detected at an early stage and failures of the system thus be prevented. In coordination with other components a complete monitoring of your system is realisable.

The dimensions of the tubemeter™ were optimized for the usage in our aquatube™ and aquainlet™, but an installation in many devices from other manufacturers is also possible. The high density and modernly produced circuit board allows an installation via the USB or aquabus connector. The used connector is automatically detected. Every component is individually tested by us prior to shipment.

Included in delivery:

One liquid level sensor tubemeter™, pre-finished and sealed in a metall casing, one internal USB-cablel (5-pin), length approx. 70 cm.

Intended usage:

Sensor for the determination of the liquid level in distilled water with a 2% additive of ACfluid™. Measuring system is based on the conductivity measurement between the sensors.

Technical data:

Operating voltage	5,0 V DC +/- 10%
Current consumption	max. 20 mA
Measuring range	approx. 52 mm
Installation thread	G 1/8, sealed with a rubber gasket
Outer dimension of the casing	16,9 mm
Dimension of the controller	approx. 110x25x94 mm

Connection:

Pin 1 is marked on the front and back of the circuit board. Pin assignment:

- Pin 1 NC
- Pin 2 GND
- Pin 3 USB D+ or data line (SDA)
- Pin 4 USB D- or clocking line (SCL)
- Pin 5 +5 V

Only use original Aqua Computer connection cables!

ATTENTION: Double-check the exact pin-assignment on the sensor and mainboard respectively aquaero. Do not under any circumstances rely on markings on connectors or cables!

Safety instructions and references on the operation:

The black varnish must not be damaged as this might lead to erroneous measurements and removes any warranties and claims!

The light emitting diode at the tip of the sensor may corrode when in contact with water and may lose the functionality. This normal chemical reaction does not constitute an operation error and therefore is not liable for warranty claims.

After a long usage sedimentation may occur on the sensor which could disturb the correct measurements. In this case the sensor may be carefully cleaned with a soft cloth and clear running water.

To recognize measurement errors at an early stage, e.g. by staining or damages to the sensor, the correct functionality of the sensor must be monitored regularly. We accept no responsibility for consequential damages that occur through incorrect usage!

Installation instructions:

Hand-screw the tubemeter™ in a vacant opening of the aquatube or in the lid of the aquainlet (fitting lid with G1/8-thread is separately available as an accessory). The narrow part of the circuit board with the gold-plated measurement surfaces is supposed to be submerged in the cooling liquid, the connector side must stay dry. To use the maximum measuring area the sensor should be installed perpendicular to the water surface. Only hand-screw the sensor, do not use any tools to fasten it!

Connect the sensor to an available USB-connector of your mainboard (cable included in delivery) or to an available aquabus-connector (cable not included in delivery) e.g. on the aquaero™ (not included in delivery).

Device settings:

No settings may be made to the sensor directly. The sensor automatically detects whether it is connected via USB or the aquabus and configures itself accordingly. All settings are made with the pc-Software „aquasuite“, where the measurements may be interpreted. Updated versions of the software may be found at <http://www.aqua-computer.de> in the „support“ -> „download“ area.