



Aqualab system solutions
Stand-alone compact systems
for hydrological applications

Aqualab Systems

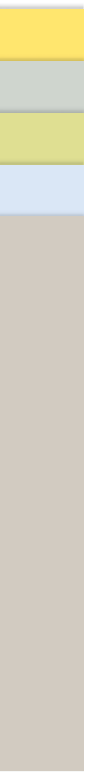
Convenient solutions for stand-alone
measuring stations

The turn-key Aqualab Systems allow hydrological measuring stations to be set up using only a few manual operations. The high-quality and completely fitted system cabinets include components for power supply and everything that is needed for storing and transmitting measured data. Four standard system options are available, along with custom configurations to meet specific needs.

In each of these options, the IP-enabled and highly energy-efficient OTT netDL 500 data-logger is the core of the system. Several SDI-12 sensors may be connected to the logger, as it has up to 40 channels. Optionally, the measured data may be remotely transferred via the built-in GSM/GPRS Next G modem or via satellite. The required antennas are already included in the system.

Aqualab Systems are specially designed to be low power for stand-alone measuring stations that are supplied by solar power. They are ideally suited to be used at remote locations. The lockable stainless steel system cabinets are dust and splash-water proof and a built-in breathing gland provides sufficient ventilation.

Quantitative
Hydrology



Appropriate basic configuration, options meeting the demand

High-quality basic configuration

In addition to power supply components, the basic configuration of the rugged control cabinet includes everything needed for saving and transferring the measured data.

In detail, the basic configuration includes the following components:

- Lockable stainless steel control cabinet including breathing gland
- OTT netDL 500 IP datalogger with built-in GSM/GPRS Next G modem and antenna
- Solar controller; solar panel including outrigger and compatible rechargeable battery available as accessories
- Input for SDI-12 sensors such as CBS Bubbler and Hydrolab Water Quality Sondes
OTT PLS (pressure probe), OTT SE 200 (shaft encoder) or RLS (radar sensor)
- Wiring diagram

All components within the control cabinet are fully installed, the datalogger is already pre-configured. The control cabinet may be installed to the mast as well as to the wall, e.g. within the gauge station. For both installation types, convenient stainless steel brackets are available as accessories.



Core of the basic configuration: OTT netDL 500 datalogger

The rugged IP datalogger featuring large storage has been developed particularly for data management in environmental monitoring. Thanks to power management, it operates in a very energy-efficient way thus enabling reliable solar power supply to be used. The built-in GSM/GPRS Next G modem provides for remote data transfer. The logger features high flexibility, since it is able to handle conventional dial-up connections as well as all major web communication protocols. The internal TCP/IP stack ensures hardware independent and smooth operation.

Features and benefits

- Efficient power management
- GSM/GPRS Next G modem; flat antenna included
- Internal web server
- Redundant communication paths
- Supports all major communication protocols (HTTP, SMTP, FTP, ...) and data formats (incl. XML)
- USB interface for easy communication on site
- Display unit including jog shuttle for quick overview
- Standard SDI-12 interfaces



System versions

Aqualab Systems are available in four basic versions. Standardization of the compact systems allows for cost-efficient production resulting in significant savings. Of course, custom configurations are also available to meet specific needs.

Control cabinet and basic configuration are the same for all system versions. For water level measurement, a bubble sensor may be installed. Optionally, the control cabinet also includes components for communication via satellite.

Aqualab Systems can be optioned with surge protection if required. Extended surge protection including conductors for solar power supply and sensor electronics is also available.

High-quality measurement technology in a modular system

Aqualab System A

- Basic configuration

System A offers the entire basic configuration as a compact system. It is ideal to quickly and easily set up a measuring station for data communication while providing power supply.

Any sensors may be connected to the SDI-12 interface. The only requirement is that they have to be compatible with the SDI-12 Standard.

Aqualab System B

- Basic configuration
- Hydrolab HL4 Water Quality Multiprobe

System B also offers the entire basic configuration and the Hydrolab HL4 Water Quality Multiprobe with required cable length.

Aqualab System C

- Basic configuration
- OTT CBS Bubbler

System C also offers the entire basic configuration and the high-quality OTT CBS Bubbler installed in the control cabinet and connected to the datalogger.

Aqualab System D

- Basic configuration
- OTT CBS bubble sensor
- Hydrolab HL4 Water Quality Multiprobe

System D also offers the entire basic configuration and both OTT CBS Bubbler and Hydrolab Water Quality Multiprobe.

Other custom configurations available

OTT CBS pneumatic bubble sensor

The compact OTT CBS Bubbler measures the water level using the indirect bubble method. The unit operates without any drift and covers a measuring range of up to 15 m. Thanks to smart pumping strategy, the air volume dose required for measuring is exactly adapted. Thus, accurate water level measurements and optimum power consumption are ensured.

When using the bubble method, only the bubble chamber (accessory) is installed in the water, while the measurement electronics is located in the control cabinet. Therefore, the non-drifting measuring method is particularly suited for locations that are exposed to lightning.



OTT PLS Pressure Transducer

Reliable, accurate and robust – the characteristics of our new pressure probe for water level measurement OTT PLS. The heart of the probe is the capacitive ceramic pressure cell, which is particularly robust technology for long-term precision. The integrated controller is the brain of the probe: It receives the pressure value measured and uses it to calculate the water level. It naturally takes account of important influences such as temperature or water density and thus guarantees correct values. The Kevlar-strengthened pressure sensor cable with integrated compensating capillary



Hydrolab HL4 Water Quality Multiprobe

The Hydrolab HL4 is the next generation multiparameter water quality instrument from OTT Hydromet. Its reliability, ease-of-use, and metadata produce water quality data you can trust. Suits water quality monitoring applications in all environmental water sources, such as rivers, streams, lakes, reservoirs, oceans, bays, estuaries, and groundwater aquifers. Sensors are available to provide data for temperature, depth, conductivity, salinity, specific conductance, TDS, pH, ORP, dissolved oxygen, turbidity, chlorophyll a, blue-green algae, rhodamine WT, etc...



Lufft – WS Series Compact Weather Sensors For measuring the wind speed, wind direction, compass, temperature, relative air humidity, barometric pressure, global radiation, and precipitation



Aqualab Systems – compact, turn-key, convenient



Features and benefits

- Standardized configuration resulting in particularly attractive value for your money
- All components are already installed, pre-wired, and pre-configured – minimum installation operations
- Powerful IP datalogger providing efficient power management
- Optional: OTT CBS water level sensor – indirect measuring method, therefore ideally suited for locations that are exposed to lightning
- Optional: Hydrolab HL4 Water Quality Multiprobe
- Optional: OTT PLS water level sensor
- Optional: Lufft Compact Weather Sensors
- Rugged lockable stainless steel system cabinet – particularly designed for field applications
- Cabinet enclosure fitted with breathing gland – for sufficient ventilation and drainage
- Convenient stainless steel mast mounting bracket – for easy installation to masts of 1" ... 4" (accessory)
- Stainless steel wall bracket – for safe wall mounting, e.g. in gauge station (accessory)

Applications

- Quick and easy installation of solar powered hydrological measuring stations, even in remote locations
- Reliable and efficient water level measurement, e.g. in streams, rivers, canals, lakes, or reservoirs
- Remote data transfer via GSM/GPRS Next G, Internet, and satellite



Technical Data

Cabinet

- Dimensions (W x H x D):
380 mm x 500 mm x 210 mm
- Housing material: Stainless steel
- Protection class: IP66
- Lockable
- Breathing gland
- Max. dimension battery: (W x H x D)
190 mm x 175 mm x 130 mm

Power Supply

- Solar controller OTT PR1205
- Optional: Solar panel 12V/10W,
460 mm x 530 mm (W x H)
with pole mount kit
- Optional: Battery 12 V/14 Ah

OTT netDL 500

- IP Datalogger
- Integrated Next G GSM/GPRS modem
- Communications interfaces:
USB Host and USB Device,
RS-232 (full DB9)
- Sensors interfaces:
SDI-12, RS-485 (SDI-12)
2x status/impulse input
2 x switched output
- Antenna

Hydrolab HL4 Water Quality Multiprobe

- Diameter 4.44cm, (5.33 w/bumpers)
- Length 51.43cm, (66.36 w/internal battery pack)
- Sensors: Temperature sensor plus 4 additional universal sensor ports and optional depth.

OTT CBS

- Bubble sensor
- Measuring range: 0 ... 15 m (0 ... 50 ft)
- Resolution: 1 mm (0.01 ft)
- Accuracy: ± 0.5 mm

OTT EPS 50 bubble chamber (accessory)

- Inner diameter of measuring tube:
2 mm or 4 mm

OTT PLS Pressure Transducer

- Measuring range: 0-4, 10, 20, 40m
- Resolution: 0.001 m
- Accuracy: $\leq \pm 0.05$ % FS

Lufft Compact Weather Sensors

- For measuring the wind speed, wind direction, compass, temperature, relative air humidity, barometric pressure, global radiation, and precipitation

Optional surge protection

- EN 61000-3-2 -> EN 55022 Class B (30 ... 1000 MHz)
- EN 61000-4-2 Level 3; 8 kV air, 6 kV contact (ESD protection)
- EN 61000-4-3 Level 3;
10 V/m (protection from RF fields); Environment class 3
- EN 61000-4-4 Level 4; 4 kV (EFT protection); Installation class 4
- EN 61000-4-5 Level 4; 4 kV (voltage spike/lightning); Installation class 5
- EN 61000-4-6 Level 3; 10 Veff (protection from conductive HF interference); Installation class 3
- EN 61000-4-8 Level 4; 30 A/m; Environment class 4

Enhanced surge protection

- Solar:
Blitzductor Solar/Radar Dehn DR M 2P 60
- Sensors:
24 V sensors; Dehn Blitzductor BXT ML2 BE S 24

Temperature range cabinet

- components included
- 25 °C ... +50 °C



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