

## BUYER'S GUIDE

# AQUAlogger® 530WTD

Wireless Temperature and Depth Logger



# AQUAlogger 530WTD

The AQUAlogger 530WTD has an innovative design that includes the ability to transfer stored data automatically to a remote computer via wireless technology and display temperature and depth data, removing the need for a cabled connection or manual interaction. With a rugged, compact design, it is suitable for use on a variety of vessels and platforms, including fishing gear, research ships, survey boats, commercial fishing vessels and moorings.

## KEY FEATURES

### Measure temperature and depth

- Measure temperature and pressure in a self-contained logger
- Pressure:  $\pm 0.2\%$  FS accuracy, 0.01% FS resolution
- A range of pressure sensors available - 5 bar, 11 bar and 51 bar
- Temperature:  $\pm 0.05^\circ\text{C}$  accuracy, better than  $0.007^\circ\text{C}$  resolution
- Flexible sampling with rates up to 1 Hz

### Using the logger

- **Wireless logger** – the AQUAlogger 530 is set up and data downloaded using the AQUAlogger reader unit
- **Robust cage** – the logger is designed for use on commercial fishing vessels and has been shock tested to US standards
- **Repeat deployment** – depth trigger and automated data download make the logger ideal for repeat profiles
- **Automation** - the logger will automatically transfer the collected data wirelessly to a designed PC or laptop on retrieval

### Deploying the logger

The AQUAlogger 530 is easy to set up with the AQUAtalk deployment wizard:

- **Standard or advanced modes**
- **Continuous or burst sampling** – sample continuously or choose burst sampling, with variable burst intervals, samples per burst and in burst sample rates
- **Sample averaging** – average data to save memory
- **Depth trigger** – start and stop logging at pre-determined depths

### Crowdsourcing and citizen science

- Multiple instruments can be used to crowdsource data from vessels of opportunity, with data automatically transferred to a central location and accessed remotely.
- The level of automation available makes the instrument ideal for use by citizen scientists

### Aquatec services

- **Service and calibration** - service and calibration plans
- **Custom instruments and accessories** – design services for new instruments, accessories, customisation and system integration



# Using the AQUAlogger 530WTD

## The AQUAlogger 530 system

The AQUAlogger 530 wireless temperature and depth logger is a self-contained data logger, with integral memory and battery. It has no connector, and instead communicates to a separate reader unit wirelessly. The instrument measures temperature and depth to 500m and is suitable for use in freshwater and marine environments. The logger will automatically transmit stored data, process the information and produce a graph on your computer when retrieved from the water.

The AQUAlogger 530 reader is required to set up deployments and download data. The reader connects to the computer via a USB cable and is supplied with AQUAtalk, Aquatec's user-friendly software. The logger communicates to the reader wirelessly up to 100m away (providing there is line of sight). An indoor reader is also available.

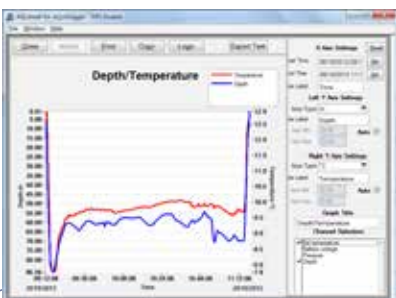


## Designed for use on commercial vessels

The AQUAlogger 530 was developed for use on commercial fishing vessels and is fitted with a durable and robust cage for protection. It has been shock-tested to US standards, and can be attached to lobster pots, nets and other fishing equipment.

Automation of data download and display (described below) minimises the effect of the instrument on commercial vessel operations. Providing there is line of sight with the reader, the logger may not need to be detached to download the data.

Input from an external GPS module can be used to add a location to the data collected. Two options are available - logger moving with the boat (GPS is logged every second and when the data is uploaded, every measurement will be tagged with the GPS position for the matching time) or logger deployed independently (a single GPS position will be used to tag all data points).



## Automation

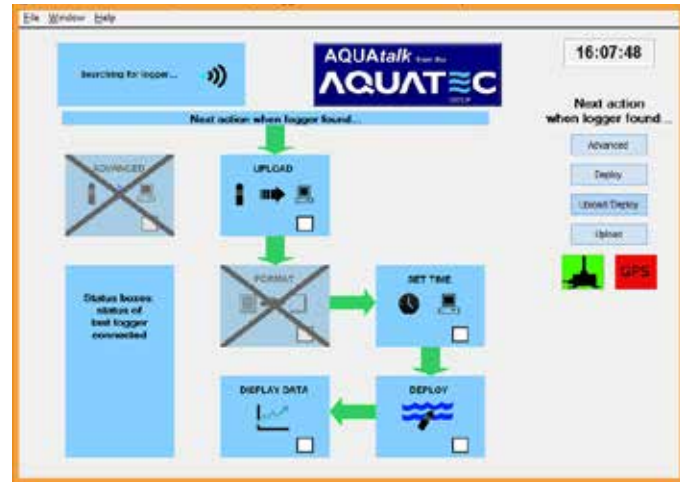
The AQUAlogger 530 features automatic data transfer - data is transmitted wirelessly to a designated PC or laptop once the equipment has surfaced. Once the data is transmitted, a graph displaying the latest deployment automatically pops to the front of the computer screen.

# Deploying the AQUAlogger 530WTD

## Standard mode

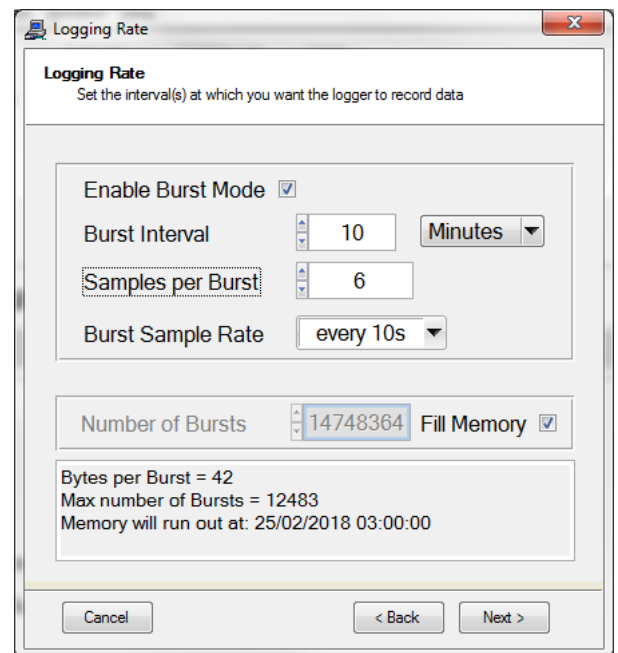
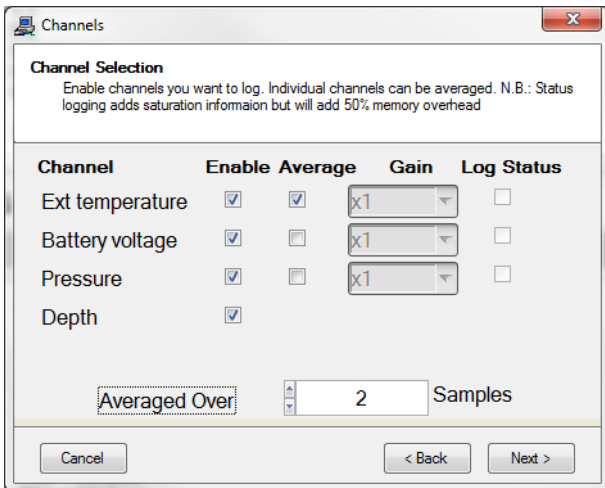
The AQUAtalk software features a deployment wizard to assist with setting up the logger. In standard mode, a main screen gives an overview of the activities and processes, and progress through the steps of setting up and deploying the logger, and later uploading and displaying the data.

An advanced mode is also available for more experienced users.



## Sampling regime

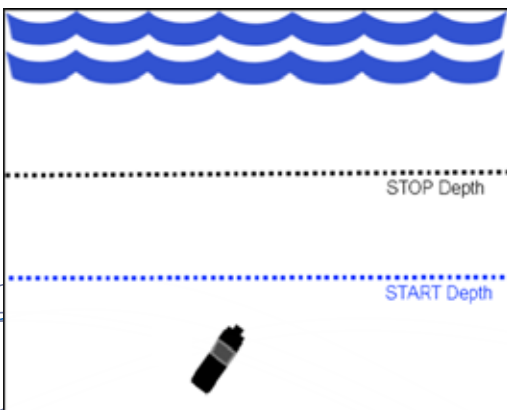
The deployment wizard allows you to choose the parameters to log and set up the sampling regime.



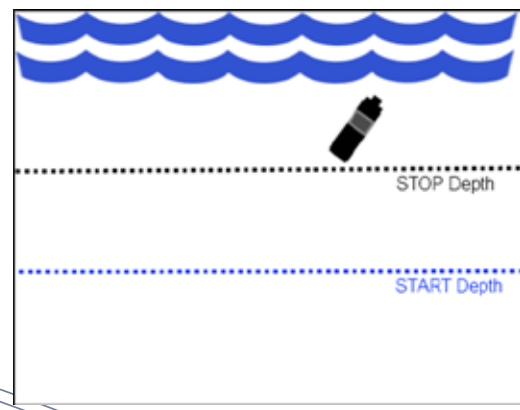
## Depth trigger

You can start and stop logging the data depending on the depth of the logger. This allows the memory and battery life to be maximised and only relevant data collected. When setting the 'Stop' depth, two options are available: The logger is stopped completely and no more data will be collected; or The 'session' is stopped and the logger will start collecting data again if it falls below the 'Start' depth.

Logger is below the start depth and begins logging on the next scheduled sample.



Logger is above the 'stop' depth and stops logging.



# Accessing your data

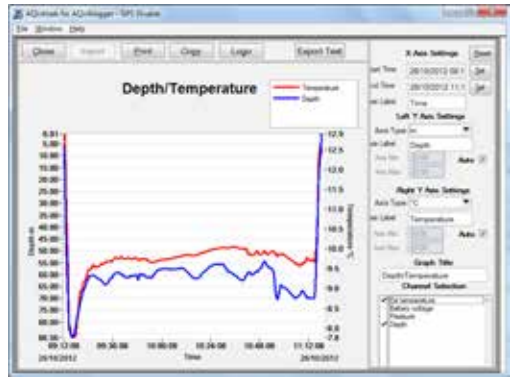
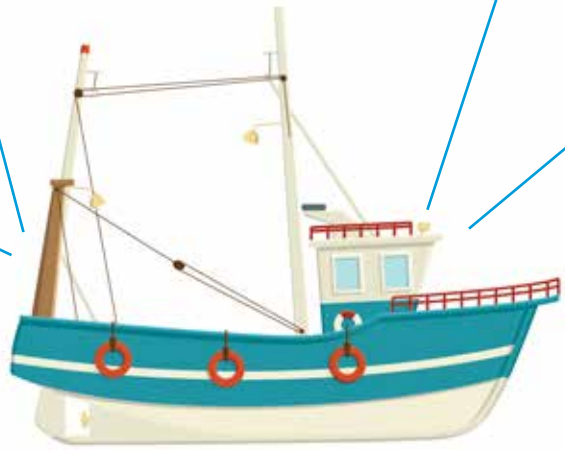


On retrieval, the logger transmits data back to the reader unit, up to 100m away.



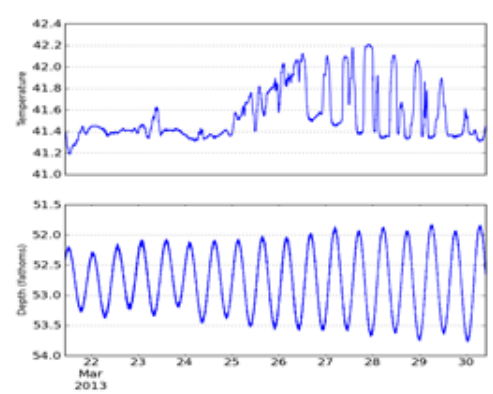
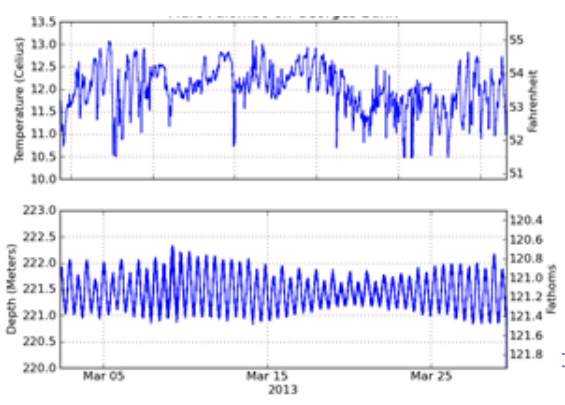
The reader unit is mounted on the outside of the vessel's wheelhouse.

The AQUAlogger 530 is deployed on fishing nets or pots. Logging starts and stops when pre-set depths are reached.



Data is downloaded to a connected PC and a graph showing the last deployment is displayed automatically.

## Example data



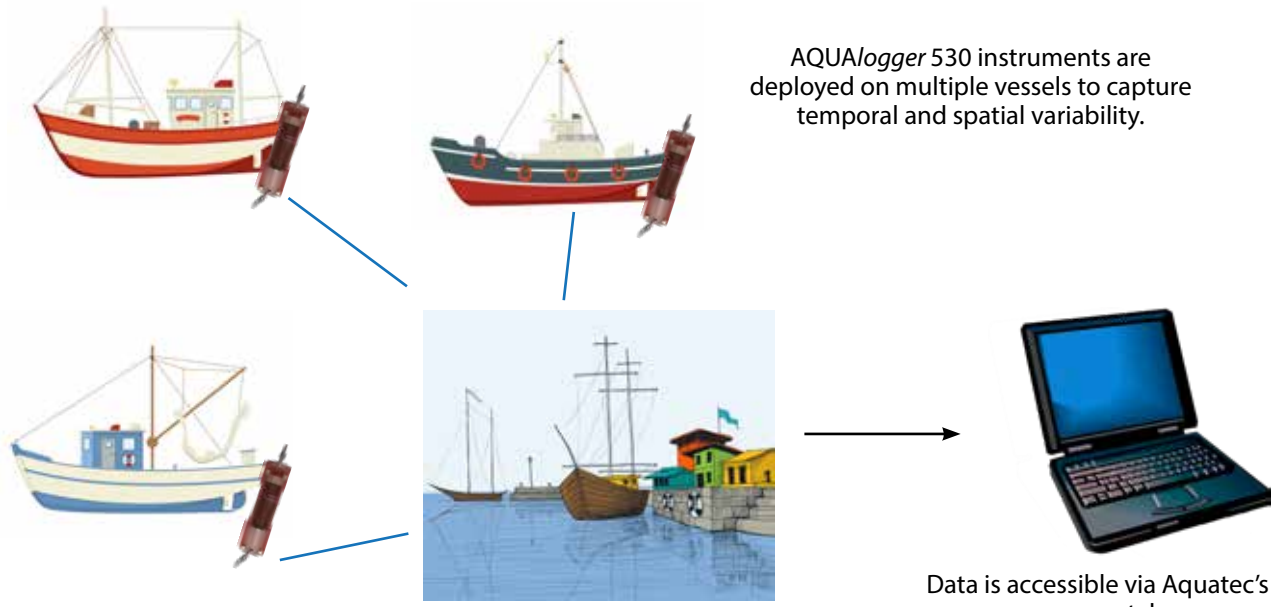


# Accessing your data

## Gathering data from multiple instruments

The AQUAlogger 530 can be used as a tool for crowdsourcing large amounts of data from different vessels of opportunity, due to the automated functionality and robust design.

### Crowdsourcing with fishing vessels



AQUAlogger 530 instruments are deployed on multiple vessels to capture temporal and spatial variability.

When vessels return to port, the data is automatically downloaded to a central location via WiFi or mobile network.

Data is accessible via Aquatec's web portal.

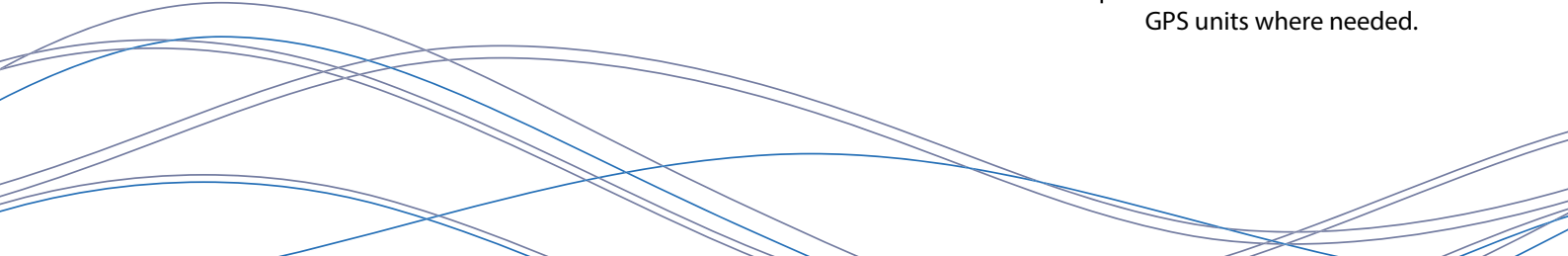
### Citizen science

Due to the level of automation built in to the system, AQUAlogger 530 instruments are ideal for citizen science projects.



In addition to the supplied reader, the AQUAlogger 530 can wirelessly connect to Bluetooth enabled Windows devices, including tablets.

Advanced starter kits are available with laptops or tablets, including pre-loaded software and external GPS units where needed.





# Selecting your instrument

## Instruments

### Standard loggers

#### **AQUAlogger 530WTD**

Temperature and depth logger  
40, 100 or 500 m rated  
Includes cage and magnet

### High speed temperature loggers

#### **AQUAlogger 530WHSTD**

High speed temperature and depth  
logger  
40, 100 or 500 m rated  
Includes cage and magnet

## Starter kit

#### **AQUAlogger 530WTD**

Temperature and pressure logger  
40, 100, 500 or 1000 m rated  
Includes cage and reader

#### **Reader unit**

AQUAlogger 530 reader  
AQUAtalk software

#### **Transit case**

Holds up to 1 logger, a reader unit and  
accessories



## Upgrades

### Extended temperature calibration

The standard logger is calibrated between -2°C and 35°C. Extended ranges available on request.

### Crowdsourcing system

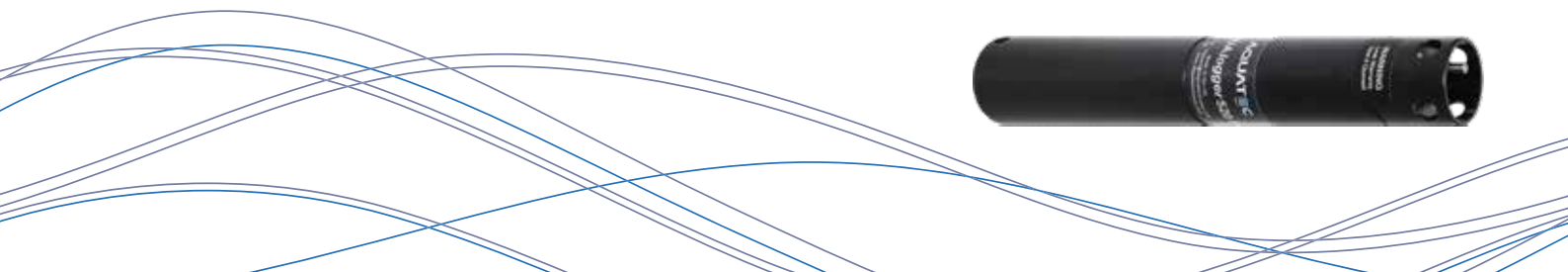
If you are planning on deploying multiple instruments to crowdsource data, Aquatec can provide a complete system including data upload to a central location and access via a dedicated website.



## Alternative instruments

For sampling rates > 1Hz, real time data output or deployments at depths greater than 1,000 m - AQUAlogger 310PT

For deployments to 1000m or logging only applications - AQUAlogger 520



# AQUAlogger 530 specification

## Sensor specification

<b>Pressure</b>	Piezo-resistive bridge 5 bar (~40 m), 11 bar (~100 m), 51 bar (~500 m) ±0.2% FS accuracy*, 0.01% FS resolution
<b>Temperature</b>	Thermistor -2 to 35°C standard range ±0.05°C accuracy, 0.001°C resolution Time constant - better than 5 seconds to 63% of the change in value (high speed temperature probe with 1 second time constant also available)

\* Including non-linearity, hysteresis, zero offset and end value deviation (corresponds to measured error per IEC 61298-2).

## Logger specification

<b>Parameters</b>	Pressure, temperature, battery voltage - all models Depth - derived parameter
<b>Memory</b>	> 4,000,000 parameters readings in non-volatile FLASH
<b>Logging lifetime</b>	Typically 1 years, depending on regime
<b>Data retention</b>	> 10 years
<b>Sampling</b>	Burst or continuous
<b>Acquisition rate</b>	Up to 1 Hz
<b>Burst averaging</b>	Bursts may be averaged to a single data value
<b>Logger communication</b>	Wireless - IEEE802.15.1
<b>Reader communication</b>	USB, bus powered
<b>Battery</b>	1.5V alkaline battery
<b>Software</b>	AQUA <i>talk</i> for configuration and download
<b>Maximum depth</b>	500 m
<b>Material</b>	Acetal
<b>Weight</b>	520 g in air, 200 g in water - logger only 1,320 g in air, 600 g in water - with cage
<b>Dimensions</b>	Diameter - 55 mm, Length - 200 mm - logger only Diameter - 74 mm, Length - 250 mm - with cage
<b>Attachment</b>	Single or double point attachments, with holes for screw attachment and shackles (provided ) for rope, shackle or carabiner attachment

## Models

<b>AQUAlogger 530WTD</b>	Pressure and temperature logger, depth dependent on pressure sensor
<b>AQUAlogger 530WHSTD</b>	Pressure and high speed temperature logger, depth dependent on pressure sensor



# Aquatec services for AQUAlogger 530

## Service and calibration

Aquatec recommend recalibrating your instruments to ensure they continue to deliver reliable and accurate results.

### Service and calibration

#### Service

Functionality check  
New O-rings  
New battery

#### Calibration

Temperature & pressure factory standard calibration



### Perpetual warranty

If you return your instruments for an annual service and calibration every year, Aquatec's perpetual warranty applies (terms and conditions available on request)

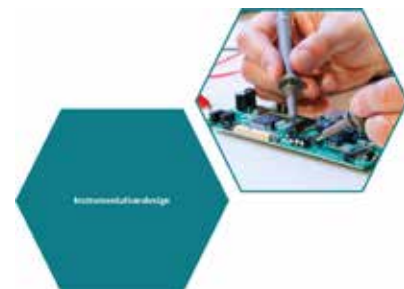
### Multi-instrument or multi-year plans

We can offer personalised plans to suit you. If you have more than one instrument or have a particular requirement, feel free to ask us about tailor made plans.

**20%  
DISCOUNT**  
if purchased  
with your  
instrument

## Custom instruments and accessories

Aquatec has been developing and manufacturing subsea instrumentation since 1990, and has a well-established and diverse range of products. Building upon this knowledge and product base, Aquatec offers an instrument design service for those requiring project / application specific instruments and accessories or new instrumentation that is not available as an 'off-the-shelf' product.





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