

BUYER'S GUIDE

AQUAlogger[®] 310PT

Standalone Temperature and Pressure Logger



Simply advanced

AQUAlogger 310PT - simply advanced

The AQUAlogger 310PT is the latest temperature and pressure logger from Aquatec, with new user friendly features and subsea data access. The compact logger features shake to show status updates, quick start functionality and flexible sampling (variable sample rates, intermittent logging and delayed start). The instrument can be used in freshwater and ocean environments, with models for shallow and deep water.

KEY FEATURES

Measure temperature and depth

- Measure temperature and pressure in a self-contained logger
- High speed sampling to 8Hz
- Real time reporting capability

User friendly features

- **Quick start** – swipe the logger with a magnet to start deploying
- **Shake to show** – check the status of the logger by shaking twice. A light indicates whether the instrument is logging, waiting to start, not deployed or has a low battery.
- **Off the shelf batteries** – user-changeable standard AA size batteries available across the world – purchase locally or order direct. Choose between alkaline, lithium or NiMH batteries to suit the deployment

Deploying the logger

Four methods of setting up the instrument depending on the complexity of the deployment

- **Basic** – delayed start, burst sampling
- **Advanced** – triggered logging, NMEA output, variable sample rates, sample averaging, intermittent logging
- **Re-deploy** – redeploy the logger using the last regime
- **Pre-defined** – load a previously saved regime file

Accessing the data

- **Log the data** and access later
- **View in real time** with a live view in AQUAtalk via a cabled connection
- Upgrade to access your data **wirelessly on the surface** with Bluetooth-enabled Windows devices
- **Access your data subsea** with Aquatec's field-swappable comms modules
 - Subsea display for data visualisation
 - Optical modem for short range interrogation, commanding and data download with ROVs or divers
 - Acoustic modem for transmitting real time readings

Aquatec services

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



Using the AQUAlogger 310PT

The AQUAlogger 310PT has new user friendly features designed to make setting up, deploying and transporting your instrument even easier.

Quick start



Set up your logger in the lab...

...then swipe with a magnet in the field to start.

The quick start function allows you to set up your sampling regime in the lab/office and only deploy your logger when you are ready. This can save battery and memory life, as well as ensuring a smooth deployment. You can check the status of the logger with the new 'shake to show' function (below).

Shake to show

Shake your logger to check the status



Shaking the logger twice illuminates a light, showing you the current status of the logger:

Logging



Waiting to start



Low battery



Not deployed



Off the shelf batteries

Choose the best off-the-shelf battery for your deployment...

...whether lithium, alkaline or NiMH

With increasingly stringent lithium battery shipping regulations, the AQUAlogger 310PT overcomes potential transit issues by using standard user-replaceable AA size batteries available across the world. You can choose the type of battery most suitable for each deployment, whether alkaline, lithium or rechargeable, balancing battery life with ease of transport. You can purchase locally or order direct from Aquatec.



Tablets



Deploy your logger and download data with Windows tablets

The new look and expanded AQUAtalk software supplied with the AQUAlogger 310PT is compatible with Windows tablets, giving you full access to the logger and your data in the field. Tablets can be purchased from Aquatec with pre-loaded software, either separately or as part of a starter kit.

Deploying the AQUAlogger 310PT

Deploying your AQUAlogger 310PT is simple with the new-look and expanded AQUAtalk software. There are 4 methods of setting up the instrument, depending on the complexity of your deployment:

Basic

For straight-forward sampling regimes, the basic mode allows you to set the following variables:

- Date and time
- When to start logging - instant start or at a set date and time
- Continuous or burst sampling
- Sampling frequency and burst rate

The screenshot shows the 'Logging Start' configuration window. It has a title bar 'Logging Start' and a subtitle 'Select when you would like the logger to begin recording data'. There are two radio buttons: 'Instant Start' (unselected) and 'Start at' (selected). The 'Start at' section includes a date picker set to 10:00:00 on 31 April 2017.

The screenshot shows the 'Logging Rate' configuration window. It has a title bar 'Logging Rate' and a subtitle 'Set the interval(s) at which you want the logger to record data'. There is a checked checkbox for 'Enable Burst Mode'. Below it are three rows of controls: 'Burst Every' (1 Minutes), 'Samples per Burst' (10), and 'Burst Sample Every' (3 Seconds). At the bottom, there is a 'Visualisation of logging' section with a graph showing three bursts of samples (pink, green, and blue) and a key below it: 'Burst 1' (pink), 'Burst 2' (green), and 'Burst 3' (blue).

Advanced

A wider set of regime variables are available with the advanced mode. In addition to those features above, you can also set the following:

- Triggered logging - use an external trigger to start logging
- NMEA output for real time data
- Variable sample rates - sample different channels at different multiples of a base sample rate
- Sample averaging - average the samples and only store the averaged value
- Intermittent logging - select the hours, dates and months you would like to log (e.g. only log data in March and May)

The screenshot shows the 'Channel Selection' configuration window. It has a title bar 'Channel Selection' and a subtitle 'Enable channels you want to log. Individual channels can be averaged (Avg), the number of samples to average is set by the average over value. Each channel sampling rate can be adjusted individually by changing the interval multiplier.' Below the subtitle is a table with columns: Channel, Enable, Avg, Gain, Log Status, Interval Multiplier, Sample Interval, Samples Per Burst, and Visualisation of logging. The table has three rows: 'Ext temperature', 'Pressure', and 'Battery'. The 'Visualisation of logging' column shows a graph with green and blue dots representing samples and records. At the bottom, there is a control for 'Averaged Over' set to 4 Samples.

Channel	Enable	Avg	Gain	Log Status	Interval Multiplier	Sample Interval	Samples Per Burst	Visualisation of logging
Ext temperature	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	x1	<input type="checkbox"/>	1	3.00 s	8	Graph showing samples and records
Pressure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	x1	<input type="checkbox"/>	1	3.00 s	10	Graph showing samples and records
Battery	<input checked="" type="checkbox"/>	<input type="checkbox"/>	x1	<input type="checkbox"/>	5	15.00 s	2	Graph showing samples and records

The screenshot shows the 'Logging Start' configuration window in advanced mode. It has a title bar 'Logging Start' and a subtitle 'Select when you would like the logger to begin recording data'. There are three radio buttons: 'Instant Start' (unselected), 'Start at' (unselected), and 'Triggered Logging' (selected). The 'Start at' section is set to 00:32:22 on 1 January 2090. The 'Triggered Logging' section has four sub-options: 'Triggering causes one burst of data collection.' (unselected), 'Triggering causes start of logging' (selected), 'When trigger is active, logger is logging' (unselected), and 'Start Logging with magnet' (unselected). There is also a 'No Logging' option with the subtitle 'Only send NMEA messages for realtime application'.

Re-deploy

With the click of a button, re-deploy the logger using the last stored regime set up.

Pre-defined

The pre-defined mode allows to you load a previously saved regime and apply to the next deployment. This mode is ideal for repeat deployments and quick set up in the field.

Accessing your data - AQUAlogger 310PT

The AQUAlogger 310PT is a flexible instrument with both logging and real time capability. As well as an optional wireless upgrade, data access subsea is possible through the new field-swappable comms modules.

Log and access later



The AQUAlogger 310PT has internal batteries and memory to allow autonomous deployment and later data download via USB. The logger has an internal memory of 64MB, with upgrades available on request.

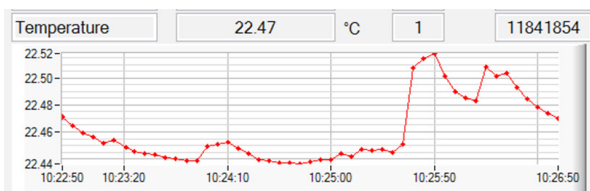
Wireless surface data transfer

Access your data wirelessly on the surface with Bluetooth enabled Windows devices, including tablets and PCs (this option must be selected at time of purchase).



View in real time with a cabled connection

View your data in real time with a cabled connection using the AQUAtalk software supplied with the instrument.



Access your data subsea

Visualise and transmit your data subsea with Aquatec's AQUAlogger 310PT field-swappable comms modules.

View your data with the display module

- Low power LCD screen
- Displays figures and graphs
- Displays all active channels including pressure and depth



Download your data with the optical modem module

- Short range interrogation, commanding and data download
- Provides a seamless link between the logger and a PC
- Designed for use with ROVs or by divers
- Range of 1m
- Download while logging and real time view



Transmit real time readings with the acoustic modem module

- Modem allows transmission of real time readings to an acoustic receiver unit
- Range of up to 250m at depths of up to 200m



Selecting your instrument

Instruments

Standard loggers

AQUAlogger 310T

Temperature logger
1000 m rated

AQUAlogger 310PT

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

Deep water loggers

AQUAlogger 310Tdeep

Temperature logger
6000 m rated

AQUAlogger 310PTdeep

Temperature and pressure logger
2000, 4000 or 6000 m rated

High accuracy loggers

AQUAlogger 310HST

High speed temperature logger
1000 m rated

AQUAlogger 310PT

Temperature and high accuracy pressure
Sensor options available on request



All AQUAlogger 310 instruments are supplied in a transit case with a magnet, software, cables, manual, warranty certificate and calibration certificates.

Accessories and upgrades

Wireless upgrade

Add on surface wireless communication and connect to your logger with Bluetooth-enabled Windows devices.



Tablet

Add a Windows tablet with pre-loaded software to set up, deploy and download data from your logger.

Subsea comms modules

The field-swappable comms modules allow real time transfer and visualisation of data subsea:

- View your data with the display module
- Download your data with the optical modem module
- Transmit real time readings with the acoustic modem module



AQUAlogger 310PT specification

Sensor specification

Pressure	Standard accuracy 5 bar (~40 m), 11 bar (~100 m), 51 bar (~500 m), 101 bar (~1000 m) - standard range 201 bar (~2000 m), 401 bar (~4000 m), 601 bar (~6000 m) - deep water range $\pm 0.2\%$ FS accuracy*, 0.01% FS resolution High accuracy Pressure ranges - on request $\pm 0.05\%$ FS accuracy*, 0.01% FS precision - high accuracy
Temperature	$\pm 0.05^\circ\text{C}$ accuracy, 0.001 $^\circ\text{C}$ resolution -2 to +35 $^\circ\text{C}$ standard range

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

Logger specification

Parameters	Pressure, temperature, battery voltage Depth - derived parameter
Memory	64 MB in non-volatile FLASH (standard) 128 MB (Upgrade option 1) - 384 MB (Upgrade option 2)
Logging lifetime	Depends on logging parameters - up to 1 year
Data retention	>20 years
Sampling	Burst or continuous
Acquisition rate	Up to 8 Hz depending on sensors
Burst averaging	Flexible averaging of multiple samples within burst
Communication	USB and either RS232 or RS422 Optional wireless communication upgrade
External interfaces	Compatible comms modules: display, optical modem, acoustic modem
Battery	4 x AA cells - selected from alkaline, lithium or NiMH
Software	AQUAtalk for configuration and download
Maximum depth	1000 m - standard model 6000 m - deep water model
Material	Acetal - standard model Duplex, with sacrificial anode - deep water model
Weight	<3 kg in air - standard model <5 kg in air - deep water model
Dimensions	Diameter - 60 mm, Length - 327 mm

Models

AQUAlogger 310T	Temperature logger, maximum 1000 m depth, standard accuracy
AQUAlogger 310PT	Pressure and temperature logger, depth dependent on pressure sensor, standard accuracy
AQUAlogger 310P_HT	Pressure and temperature logger, depth dependent on pressure sensor, high accuracy
AQUAlogger 310T_{deep}	Temperature logger, maximum 6000 m depth, standard accuracy
AQUAlogger 310PT_{deep}	Pressure and temperature logger, depth up to 6000m, standard accuracy
AQUAlogger 310P_HT_{deep}	Pressure and temperature logger, depth up to 6000m, high accuracy

Aquatec services for AQUAlogger 310PT

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)

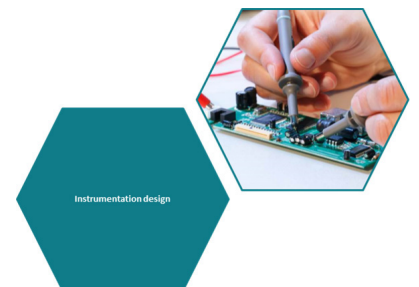
Multi-instrument or multi-year plans

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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