

Bathy2 Operating Manual



Document ID 0608808 | issue: 2.1

Date: February 2026

This confidential document was prepared by the staff of Teledyne Valeport Limited, the Company, and is the property of the Company, which also owns the copyright therein. All rights conferred by the law of the copyright and by virtue of international copyright conventions are reserved to the Company. This document must not be copied, reprinted or reproduced in any material form, either wholly or in part, and the contents of this document, and any method or technique available there from, must not be disclosed to any other person whatsoever without the prior written consent of the Company.

© 2026 Teledyne Valeport Ltd

Teledyne Valeport Ltd
St Peter's Quay
Totnes TQ9 5EW
United Kingdom

Phone: +44 1803 869292
Email: Valeport-Sales@Teledyne.com
Web: www.valeport.co.uk

As part of our policy of continuous development, we reserve the right to alter, without prior notice, all specifications, designs, prices and conditions of supply for all our equipment.

Table of Contents

| | | |
|-------|-------------------------------------------------------------------------------|----|
| 1 | Introduction..... | 4 |
| 2 | Sensors..... | 6 |
| 2.1 | Pressure Sensor | 6 |
| 2.1.1 | Interchangeable Pressure Sensor Modules..... | 6 |
| 2.2 | Temperature Sensor | 7 |
| 2.3 | Conductivity Sensor | 8 |
| 2.4 | Sound Velocity Sensor..... | 8 |
| 2.5 | Calculated Values | 8 |
| 2.5.1 | A Note About Depth Accuracy: | 9 |
| 3 | Electronic Specification | 10 |
| 4 | Physical Characteristics..... | 11 |
| 4.1.1 | Materials..... | 11 |
| 4.2 | Dimensions - Bathy2 and Bathy2e | 11 |
| 4.2.1 | Internal Pressure Sensor Datum..... | 11 |
| 5 | Principle of Operation | 12 |
| 5.1 | Explanation of SAAR Table..... | 12 |
| 5.2 | Explanation of Density Profile | 12 |
| 6 | Communications..... | 13 |
| 6.1 | Serial Comms - RS232 and RS485..... | 13 |
| 6.2 | Serial Comms – Modbus..... | 13 |
| 6.3 | Configure App – COMMUNICATIONS | 13 |
| 7 | Setting Up the Bathy2..... | 14 |
| 7.1 | Start / Stop..... | 14 |
| 7.2 | Valeport Configure App..... | 15 |
| 7.2.1 | Configure App – INSTRUMENT Tab | 16 |
| 7.2.2 | Configure App – COMMUNICATIONS Tab | 17 |
| 7.2.3 | Configure App – UNITS Tab | 18 |
| 7.2.4 | Configure App – OUPUT Tab | 19 |
| 7.2.5 | Configure App – PRESSURE Tab..... | 20 |
| 7.2.6 | Configure App – ALTIMETER Tab..... | 22 |
| 7.2.7 | Configure App – DENSITY PROFILE Tab..... | 23 |
| 7.3 | Bathy2 Interpreter App | 25 |
| 7.3.1 | Configuring the Interpreter App..... | 25 |
| 7.4 | Interfacing an Altimeter | 27 |
| 7.5 | Interfacing an External Pressure Sensor through AUX IN (Digiquartz) Port..... | 27 |
| 7.6 | Interfacing to an INS through AUX out 5 port subconn (INS)..... | 27 |
| 8 | Manual Setup Commands | 28 |
| 8.1 | Pressure Tare | 31 |
| 8.2 | Set Latitude and Longitude | 31 |
| 9 | Data Output Formats | 32 |
| 9.1 | Data String Formats..... | 32 |
| 9.1.1 | Format: VALEPORT..... | 32 |
| 9.1.2 | Format: VALEPORT (BathyPack)..... | 34 |
| 9.1.3 | Format: Seaking Long..... | 35 |
| 9.1.4 | Format Seaking Long (Decimal) | 36 |
| 9.1.5 | Format: Digiquartz..... | 37 |
| 9.1.6 | Format: UK90_STD..... | 37 |

- 9.1.7 Format: WINSON_PROC 38
- 9.1.8 Format: WINSON_PROC (Subsea)..... 40
- 9.1.9 Format: IN_SITU SENSORS 40
- 9.1.10 Format: VALEPORT SVX2 40
- 9.2 Modbus RTU over RS485 41
- 10 Wiring Details 42
 - 1.1 Bathy2 Main Bulkhead Connector 42
 - 1.2 Bathy2 Altimeter Bulkhead Connector 42
 - 1.3 Bathy2 AUX (INS) Bulkhead Connector (from February 2026) 42
 - 1.4 Bathy2 Digi quartz Bulkhead Connector 43
 - 1.5 RS232 3m Y lead (as supplied)..... 43
 - 10.1.1 Ethernet Connection 43
- 11 Ethernet – Bathy2e 45
 - 11.1.1 Setting up Ethernet Connectivity..... 45
- 12 Care & Maintenance 49
 - 12.1 Calibration..... 49
- 13 Updating the Bathy2 50
 - 13.1 Updating the Intelligent Interface Board Firmware..... 50
 - 13.2 Valeport Bootloader App 51
- 14 Ordering and Part Numbers..... 55
- 15 Declarations of Conformity 56
 - 15.1 EU Declaration of Conformity – CE Mark 56
 - 15.1.1 Bathy2 56
 - 15.1.2 Interchangeable Pressure Module 57
 - 15.2 UK Declaration of Conformity – UKCA Mark 58
 - 15.2.1 Bathy2 58
 - 15.2.2 Interchangeable Pressure Module 59

1 Introduction

The Bathy2 has been designed to meet customer bathymetric survey and underwater navigation requirements via a reliable, accurate and robust instrument with flexible functionality to suit operations, up to 6000 m depth.

Density corrected depth data directly from one instrument

An evolution of the popular Midas BathyPack, the Bathy2 uses state-of-the-art sensors to generate density-corrected depth, with all calculations taking place in real time, in the instrument. This removes the need for data passing up and down the vehicle umbilical and, as a result, provides precision depth and height data with a minimum of latency, vital for accurate level and positioning data especially when operating with inertial systems and sensors.

This instrument brings together the benefits of density-corrected output directly from one instrument, alongside the flexibility of interfacing an optional third-party pressure sensor, Digiquartz, and Valeport interchangeable pressure modules to allow users enhanced accuracy at different operational depths.

Key features:

- Titanium housing
- RS232 or addressable RS485 data output
- ASCII and Modbus RTU output protocols
- Ethernet option (factory fit)
- Choice of calibrated data formats
- Interchangeable pressure sensor module
 - Pressure ranges from 10 to 600 Bar (approx. 100 m to 6,000 m water)
 - Titanium diaphragm pressure sensor
 - No external diaphragms, oil reservoir or oil-filled tubes
 - Long term calibration stability
 - 2 year recommended recalibration cycle
- TEOS 10 seawater properties of water computation for depth calculation
- Choice of sampling modes

Improved user experience

Improving the user experience has been a key driver in the development of this superior bathymetric instrument and the addition of dedicated data output for INS allows bathymetric data to be efficiently communicated directly with users' own operational software.

Other helpful benefits include the flexible pressure options using Valeport's interchangeable pressure sensors. These field-swappable pressure modules make it easy for users to select the correct pressure for their working depth, bringing benefits of exceptional reliability and a higher degree of accuracy.

Designed for surveyors

Designed for surveyors requiring bathymetric data from ROVs, underwater vehicles or drop structures, Bathy2 also has an external pressure sensor input option for Digiquartz referencing. This comprehensive bathymetric package offers other useful parameters such as Altitude through an interface to a Valeport VA500 altimeter and other popular third party alternatives.

Seamless data transfer

Data transfer is via Ethernet or RS232/RS485 interfaces. The Bathy2 Interpreter application allows data to be streamed out on extra ports (serial or TCP/IP) in industry-standard formats. This facility also allows for an atmospheric pressure data input to be fed to the instrument.

The Bathy2 converts pressure measurements to depth, accounting for local variations in water column characteristics to ensure the highest possible accuracy. In addition, Bathy2 accepts data from an altimeter to provide height above the seabed, scaled using the on-board Valeport “time of flight” sound velocity sensor, thus giving an overall location of the device within the water column. This concept is not new - the Bathy2 builds on the standard specification you would expect, with several unique features that significantly enhance the performance of the product:

- Temperature compensated piezo-resistive pressure sensor that provides $\pm 0.01\%$ accuracy (full scale) with better stability and durability than resonant quartz-type sensors. In addition, there is no oil reservoir to protect the sensor, allowing easier maintenance and faster deployment. The Bathy2 has interchangeable pressure modules that allow the most suitable range to be selected for the operational depth of the project, maximising the potential accuracy of the system.
 - If required, an external pressure sensor e.g. Digiquartz can also be interfaced as a separate unit and used in preference of the integrated unit. This should be interfaced to the AUX IN/Digiquartz port.
- Valeport’s own inductive coil conductivity sensor, constructed from advanced composite materials to eliminate the effects of pressure on sensor performance, is used as part of the sensor suite. Other inductive cells can distort under pressure, giving errors in the measurement – even a few μm is enough to put the sensor out of specification at depth. The Valeport cell has no such errors. Inductive cells also have an advantage over electrode conductivity sensors, in that they are less susceptible to contamination by oil, growth or debris.
 - Full “in situ” factory calibration; inductive conductivity cells are affected by the presence of any object (conductive or non-conductive) that lies within the sensor’s field (within approx. 5cm). Valeport’s factory calibration against a salinometer, performed with all other sensors and guard in close proximity, guarantees in-field accuracy. A simple “resistor calibration” actually does nothing more than verify sensor operation. Further, the digital measurement technique virtually eliminates drift in sensor calibration, removing the need for “field calibration” procedures.
- Unique “synchronised sampling” means that all sensors are sampled at precisely the same instant, not in sequence. This removes alias and latency errors from the measurements.
- Altimeter input - fitted as standard – just plug in a correctly configured instrument.
- Titanium housing as standard - no corrosion issues, and a maximum depth rating of 6000 m. Note that a selection of pressure sensor ranges are available, so your instrument’s depth rating may be limited to less than the full 6000 m.
- Full TEOS 10 calculations for a more accurate depth calculation. The system integrates water density variations to calculate the depth from pressure, not the simplified method of averaging the density.
- The Bathy2 can be setup for operation using Valeport’s Configure App.
- All data can be viewed on a topside PC, so no dedicated control unit is required. The intuitive Bathy2 Interpreter App allows you to view and distribute data, serially or through Ethernet protocols.
- The Bathy2 Interpreter App can interface an atmospheric pressure sensor for real-time compensation, the Bathy2 is updated without interrupting operations.

In summary, the Bathy2 sets out to “de-mystify” the accurate calculation of depth from water pressure. State of the art sensing technology gives you accurate data; precise calculations give you accurate answers; simple PC software gives you total control.

Getting the right answer has never been easier.

2 Sensors

The Bathy2 is fitted with the following sensors:

2.1 Pressure Sensor

A high accuracy, 0.01% of full scale, temperature compensated piezo-resistive pressure transducer.

The Pressure Module is interchangeable.

| | |
|------------------------------|--------------------------------------------------------------------------------------------|
| Sensor Type | Strain Gauge |
| Range: individual modules | 10, 20, 30, 50, 100, 200, 300, 400 or 600 Bar 1 bar is approximately equal to 10m depth |
| Resolution: | 0.001 |
| Accuracy: | ±0.01% of full range |
| Response Time: | 1 millisecond |
| Units | dBar Pascal PSI |

2.1.1 Interchangeable Pressure Sensor Modules

The Interchangeable Pressure Sensor Modules, with a titanium diaphragm, can be swapped to best suit the operational depth of the project. The accuracy of the sensor is a factor of the full-scale capability of the sensor - 0.01% - and not the measured pressure. A 600 Bar module will offer the same ±0.60 m accuracy at 6000 m as it will at 250 m, while a correctly selected 30 Bar Pressure Module, for an operation at 250 m, will provide an accuracy of ± 0.03 m.

| Bar | Maximum Operational Depth (metres) | Accuracy (0.01%) (± metres) |
|-----|---------------------------------------|--------------------------------|
| 10 | 100 | 0.01 |
| 20 | 200 | 0.02 |
| 30 | 300 | 0.03 |
| 50 | 500 | 0.05 |
| 100 | 1000 | 0.10 |
| 200 | 2000 | 0.20 |
| 300 | 3000 | 0.30 |
| 400 | 4000 | 0.40 |
| 600 | 6000 | 0.60 |

Prior to changing out a Pressure Module, the Bathy2 should be powered off, thoroughly rinsed in fresh water and dried.

A Pressure Module should ideally be changed in dry lab conditions but if this is not possible every effort must be made to keep water out of the module socket. Check the module and socket for any water, and if found dry everything thoroughly before fitting. If water does get into the socket, it could cause the connector to corrode.

A special tool is provided to unscrew the fitted module and screw its replacement securely into place. Never use excessive force.

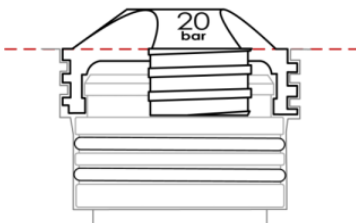


The three prongs should be carefully inserted into the lock screw cap of the Pressure Module and turned counter-clockwise (when looking directly at the module) to loosen it. Keep turning until the Pressure Module gently pops out of the socket. The tool will engage with the Pressure Module and allow you to very gently pull if required.

Before fitting a replacement, Pressure Module check all surfaces for wear - especially the lock screw cap. Check the O rings are clean and free of any debris, wear or damage. There is no need to grease the O rings. The closing action of the system does not rely on surfaces sliding over one another and grease might attract debris that would compromise the seal.

The replacement Pressure Module should be placed into the socket with the connector approximately lined up with its pair. Fine adjustment is achieved by the shape of the module housing in the socket.

Engage the screw cap into the threads of the socket and then use the tool to tighten the Pressure Module into place. The module should be screwed down until the shoulder of the lock screw cap is in line with the shoulder of the titanium end-cap as shown below:



Do not over tighten.

2.2 Temperature Sensor

| Temperature | |
|-------------|--------------------------------|
| Type | Fast Response PRT (with guard) |
| Range | -5 to +35°C |
| Accuracy | ±0.005° |
| Resolution | 0.002° |
| Units | °C °F |

2.3 Conductivity Sensor

| Conductivity | |
|--------------|--------------------------|
| Type | Valeport Inductive Coil |
| Range | 0 – 80 mS/cm |
| Accuracy | ±0.01 mS/cm |
| Resolution | 0.002 mS/cm |
| Stability | <±0.01 mS/cm/year |
| Units | dBar Pascal (Pa) PSI |

Be aware that when installing the Bathy2 there must be a minimum of 0.15 metres between the Conductivity sensor and any other metal object. The metal housing and protection cage around the sensor have been calibrated out.

2.4 Sound Velocity Sensor

| Sound Velocity (Measured) | |
|---------------------------|------------------------------|
| Type | Valeport miniSVS (50mm type) |
| Range | 1400 – 1600 m/s |
| Accuracy | ±0.02 m/s |
| Resolution | 0.001 m/s |
| Units | metres/second feet/second |

2.5 Calculated Values

| Salinity | |
|------------|---------------------------------------------------------|
| Method | Calculation (TEOS10) |
| Range | 0.02 – 42 (calculation unverified at higher salinities) |
| Accuracy | ±0.017 (at 500m depth) |
| Resolution | 0.001 |
| Units | g/Kg |

| Density | |
|------------|------------------------------------------|
| Method | Calculation (TEOS10) |
| Range | 994 – 1075 kg/m ³ |
| Accuracy | ±0.016 kg/m ³ (at 500m depth) |
| Resolution | 0.001 kg/m ³ |
| Units | Kg/M ³ |

| Depth | |
|------------|-------------------------|
| Method | Calculation (TEOS10) |
| Range | N/A |
| Accuracy | See Note Below |
| Resolution | 1 mm (software limited) |
| Units | Metres Feet |

2.5.1 A Note About Depth Accuracy:

The true accuracy of the calculated Depth is a function of several parameters:

- The accuracy of the pressure sensor itself.
- The error in density measurement resulting from the accuracy of the Conductivity measurement.
- The error in density measurement resulting from accuracy of the Temperature measurement.
- The error in density measurement resulting from accuracy of the Pressure measurement.
- The significance of the above errors in relation to the depth range, and the ambient salinity and temperature conditions.
- The inherent accuracy of the equation used, which is estimated at 0.1 m over 10000 dBar.
- The overall depth accuracy, therefore, relates to not only how good the sensors are, but will also vary according to the local conditions. For example, accuracy of a depth measurement in 500 m water at 5°C and a salinity of 35 ppt will be different to that in 500 m water at 1°C and a salinity of 36 ppt.

However, these variations are typically small, and it is therefore, reasonable to assume that the accuracy will be dominated by the performance of the pressure sensor and that of the UNESCO equation.

3 Electronic Specification

| | | |
|---------------------------------|----------------------------------|--------|
| Power Source | External Supply Only | |
| Input Range | 9 – 28V DC | |
| Maximum Consumption (@ 12 V DC) | Base system | 195 mA |
| | Base system + Digiquartz | 225 mA |
| | Base system + VA500 | 370 mA |
| | Base system + Digiquartz + VA500 | 410 mA |
| Inrush current (@ 12 V DC) | Base system | 190 mA |
| | Base system + Digiquartz | 225 mA |
| | Base system + VA500 | 335 mA |
| | Base system + Digiquartz + VA500 | 380 mA |

Bathy2 can be further enhanced by interfacing a VA500 Altimeter to provide true water column height. The Bathy2 will route external power to an altimeter; ensure sufficient power is supplied to suit the altimeter used.

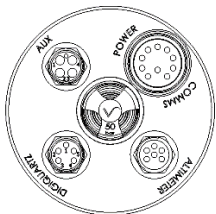
| | |
|-------------|---------------------------------------------------------------------------------|
| Data Output | RS232 & RS485 fitted as standard (choice made by pin selection on connector) |
| | Ethernet (factory fit option) |
| Protocol | 8 data bits, 1 stop bit, no parity, no flow control |
| Baud Rate | User selectable from 2400 to 230400 (factory default 115200) |
| Update Rate | 1, 2, 4 or 8Hz |

4 Physical Characteristics

4.1.1 Materials

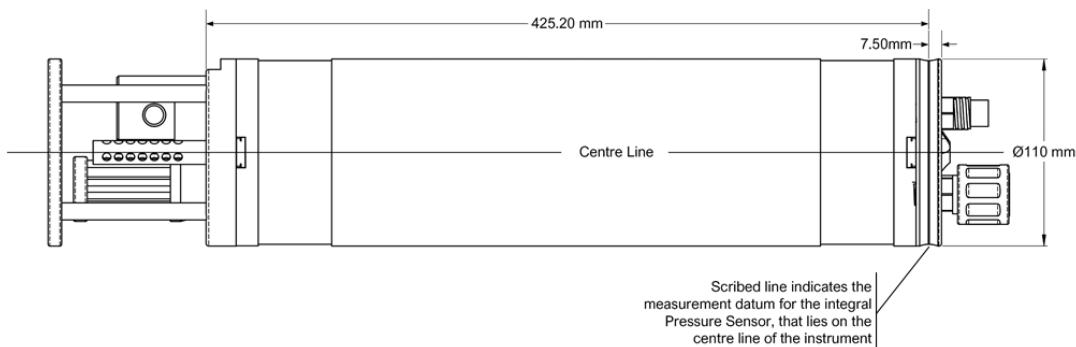
| | |
|-------------------------------------------------|-------------------------------------------|
| Housing & Bulkhead: | Titanium |
| Connectors: | SubConn MCBH10F (power / COMMS) |
| | SubConn MCBH6F (to altimeter) |
| | SubConn MCBH4F for AUX output (INS) |
| | SubConn MCBH5F for Digiquartz (aux input) |
| Specific connectors can be provided as required | |
| Weight: | <10 kg (in air) |

4.2 Dimensions - Bathy2 and Bathy2e



Serial COMs Endcap

4.2.1 Internal Pressure Sensor Datum



All offsets are programmed in metres regardless of what Height/Depth unit is programmed for data output purposes

5 Principle of Operation

Unlike its predecessor, the Bathy2 performs all computations on board the instrument. This reduces latency to a minimum and reduces topside equipment.

All depth output is relative to the instrument. Offsets are available to define this datum in relation to the internal pressure sensor, an external pressure sensor and an Altimeter if fitted.

The relationship between pressure and depth is not a simple one and is a function of the water density. More specifically, the water density at every single point in the water column affects the pressure depth relationship at the bottom. It is, therefore, a requirement to know the density of water at every point above the pressure sensor in order to accurately calculate the depth from the pressure value. The Bathy2 builds an array table, or profile, of the water density at a predefined rate through the water column as it descends. It also updates this table as it ascends or moves around in the column during the deployment. The resolution of this profile is limited to a maximum of 6000 points, which means that in 6000 dBar of water pressure (approximately 6000 m), it will store a Density value for every dBar (~ 1 metre). Greater resolution is possible at shallower depths, e.g. 0.25 dBar in 1500 dBar pressure.

The full TEOS10 formula uses a density integration function rather than density averaging, and therefore, properly accounts for the compressibility of water. In water depths of less than 100 m, this distinction is negligible - less than 1mm - but the error due to use of the simpler averaging method increases dramatically at greater pressures, approaching 1 m at 1000 m depth.

5.1 Explanation of SAAR Table

A notable difference of TEOS-10 compared with EOS-80 is the adoption of **Absolute Salinity (rather than Practical Salinity)** to be used in scientific journals to describe the salinity of seawater and to be used as the salinity argument in the TEOS-10 algorithms that give the various thermodynamic properties of seawater. Practical salinity is essentially measuring the distribution of ions in the seawater. Absolute salinity is based on the mass of all non-H₂O material, whether it's ions, gases, or solids.

www.teos-10.org/pubs/TEOS-10_Manual.pdf

In brief, practical salinity concentrated solely on the conducting ions of seawater whilst Absolute salinity includes the mass of the non-conducting compounds which have an influence on the density. The relationship between practical salinity and absolute salinity has a geographical distribution.

The worldwide data for these corrections is too large to store in the instrument, so to apply the correction a geographic lookup is performed, and a SAAR (Salinity Absolute Anomaly Ratio) correction table generated by Valeport Configure and passed down to the Bathy2 for use in its density and depth calculations.

5.2 Explanation of Density Profile

As the Bathy2 passes through the water column, it uses temperature, conductivity and pressure to calculate point values of salinity and density. These values are then used to update a running integration process that computes the density of the water column above the instrument location and calculate the accurate depth of the instrument based on this data.

6 Communications

Control of the Bathy2 is achieved through the use of “\$ codes”, as described in the sections below.

All commands must be “sent” by pressing the Enter key
with the exception of the single ‘\$’ character required to enter set up mode

6.1 Serial Comms - RS232 and RS485

Bathy2 is fitted with both RS232 and RS485 communications as standard. RS485 is enabled by grounding a pin in the communications lead (refer to [Wiring Section](#)).

Protocol is 8 data bits, 1 stop bit, no parity, no flow control.

Baud rate is factory set to 115200. User may choose between 2400 and 230400.

Fast data rates and longer data string outputs may not be possible with low baud rates

6.2 Serial Comms – Modbus

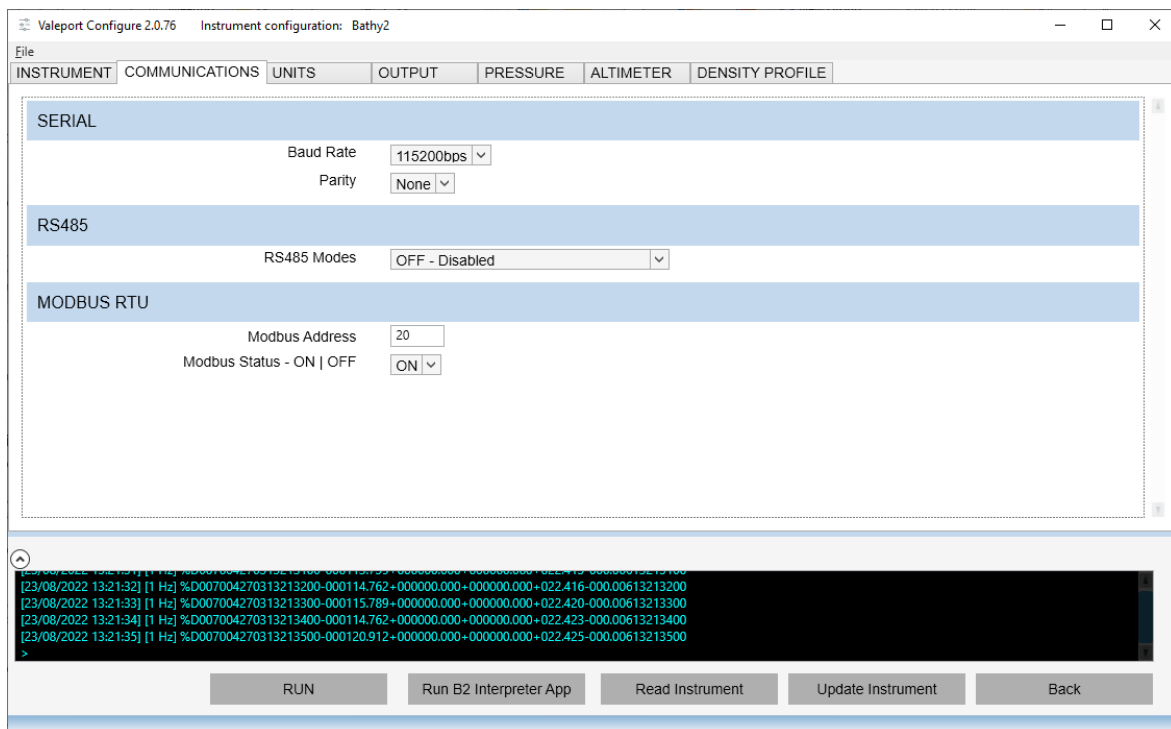
The Bathy 2 is fully compatible with Modbus RTU.

Modbus must be enabled to use a real-time atmospheric pressure correction through the Bathy2 Interpreter App.

Please contact Valeport if you would like to use Modbus and the relevant address can be provided.

6.3 Configure App – COMMUNICATIONS

Use the Configure App to setup the COMs settings as required see section [Valeport Configure App](#)



Modbus Status must be ON to operate with the Interpreter App.

7 Setting Up the Bathy2

Bathy2 can be configured for operation using Valeport's Configure App, available to download from <https://Valeport.Download>. See separate manual for general operation of the App. Specific operation with respect to the Bathy2 is outlined below.

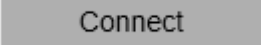
The Bathy2 Interpreter App is also available to run alongside the Configure. The Interpreter App is used to view data, apply Atmospheric correction data and distribute specific data strings to up to 5 COM ports.

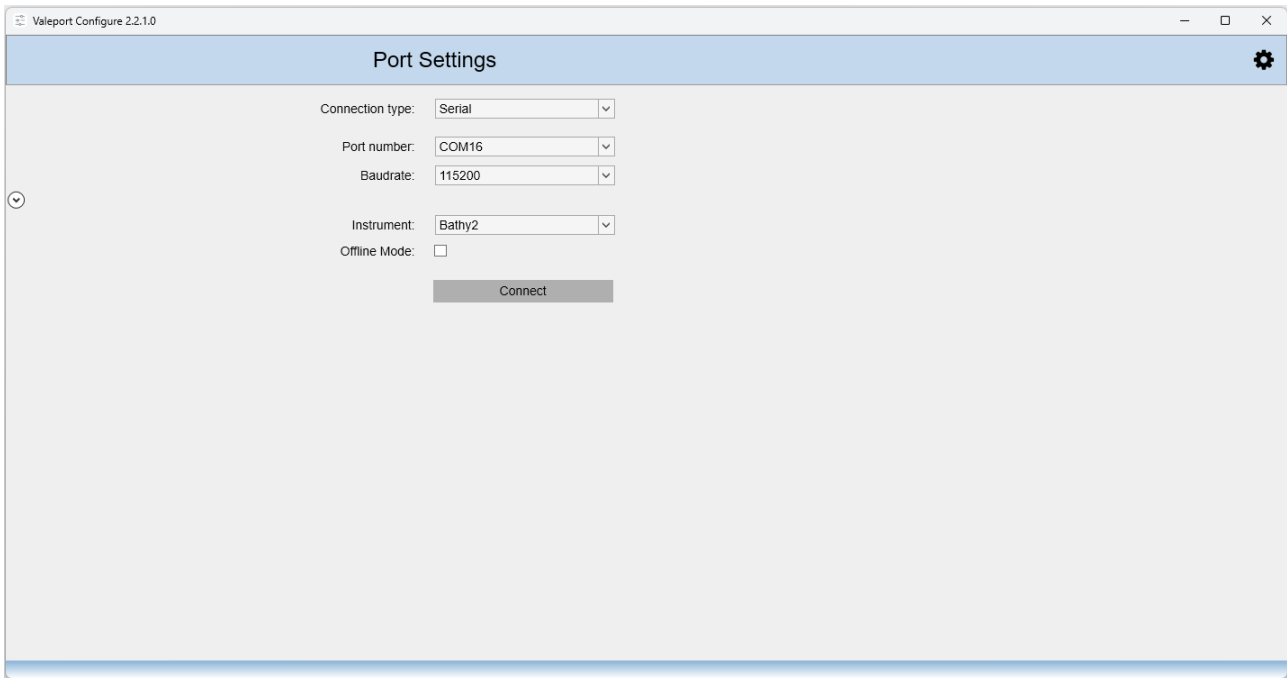
7.1 Start / Stop

When power is applied to the Bathy2, it will begin to operate according to the settings already programmed after a period of approximately 2 minutes. The most basic level of Stop / Start control is, therefore, by switching power on and off. The bathy2 will retain the density table on a power cycle.

| # Code | Description |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| # | <p>When the instrument is running, the Bathy2 may be put into set up mode at any time by typing the '#' character followed by the ENTER key. The device will respond with a command prompt '>' and wait the next instruction</p> <p>When interrupted an ERROR response is often seen. This is generated due to the <CR><LF> usually associated with the # and should not be interpreted as a problem with the Bathy2.</p> <p>A "watchdog" function is in operation within the Bathy2 If the unit is interrupted with the '#' character, and no further command is received for a period of 2 minutes, the sensor will automatically begin sampling data using the existing settings</p> |
| \$028 | Starts sampling in the mode set, or takes a single reading if unit is in "Single" sampling mode |

7.2 Valeport Configure App

Select your COM port and baud rate from the drop-down menus, Select Bathy2 in the Instrument field and Click 



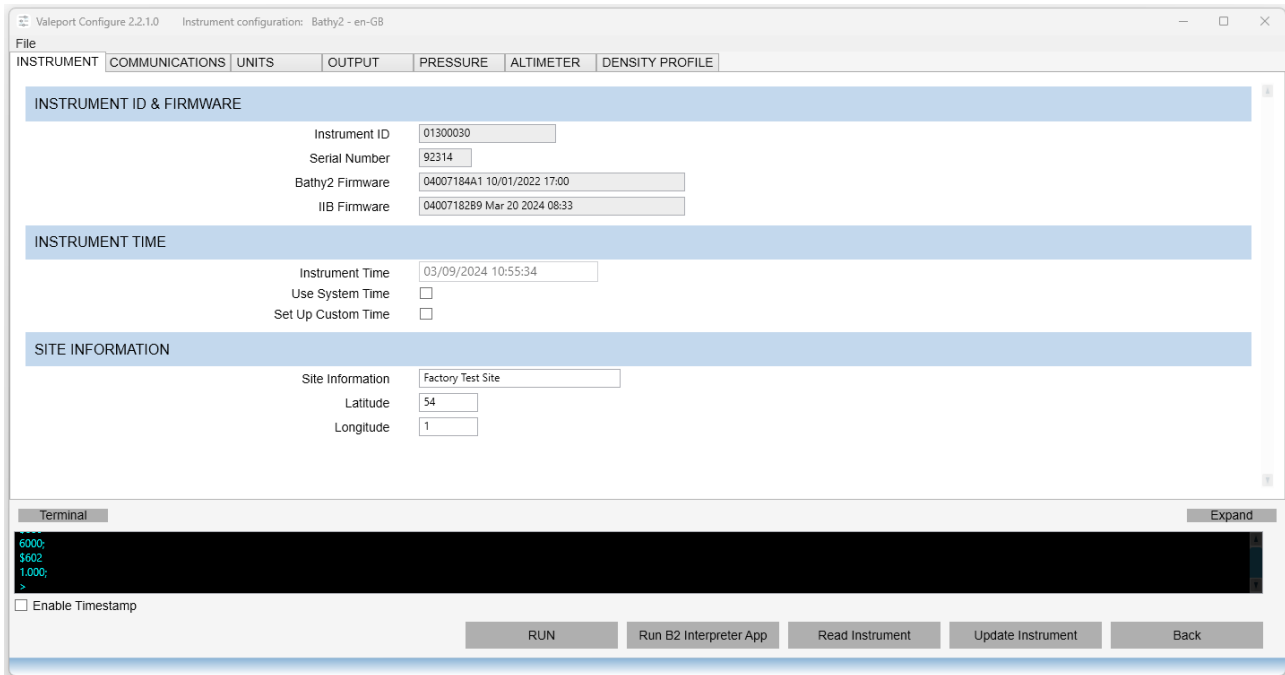
Once connected, it is advised that you 'Read' all the settings presently programmed into the instrument the Read Instrument button on the lower menu ribbon:



All the settings will be downloaded, and the appropriate fields will be populated ready for you to configure as required.

7.2.1 Configure App – INSTRUMENT Tab

In the INSTRUMENT tab is a set of general parameters.



INSTRUMENT ID AND FIRMWARE

- Read only – details of the instruments ID, serial number and firmware

INSTRUMENT TIME

The Bathy2 time – sync to UTC, local or project time as required.

- Instrument Time - a display of the time currently set in the Instrument
- Use System Time – tick this option to sync the Bathy2 to your PC time
- Set Up Custom Time – click this option to edit the Instrument Time field as required

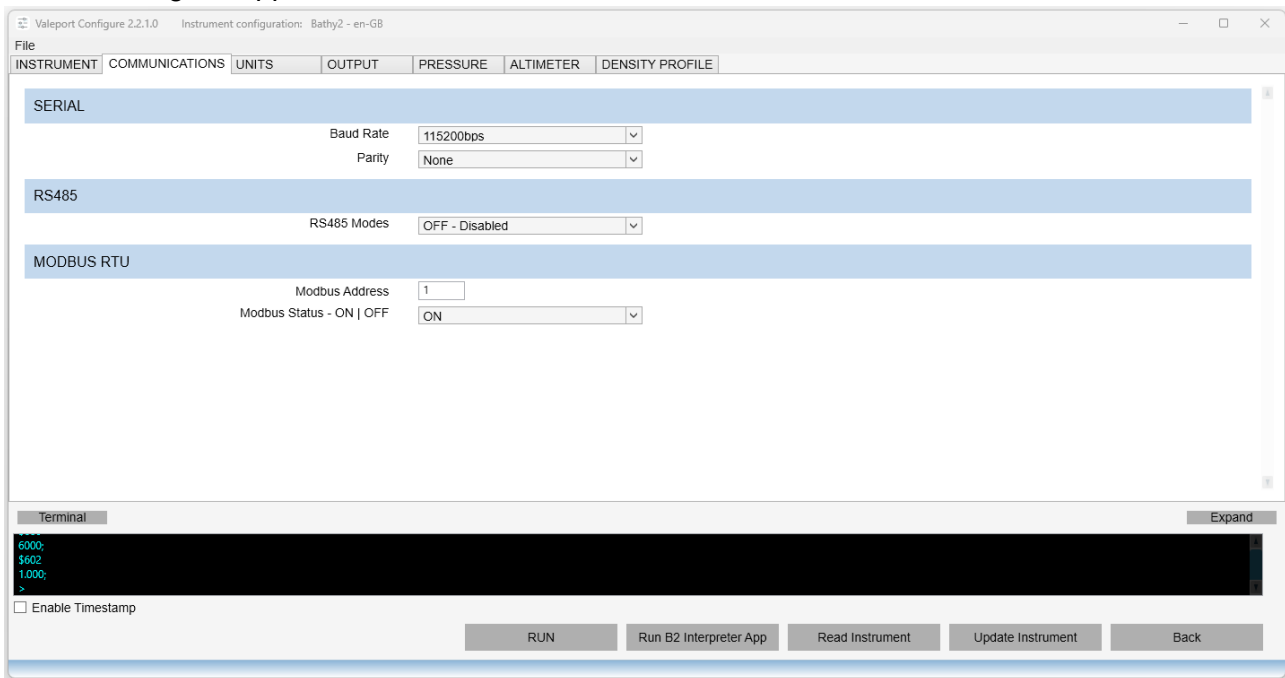
SITE INFORMATION

- Site Information - free text of 29 characters for you to identify your project.
- Latitude – Site Latitude
- Longitude - Site Longitude

Latitude and Longitude is required for SAAR Table generation and should be in the approximate centre of the project location.

click  to apply all changes

7.2.2 Configure App – COMMUNICATIONS Tab



Baud rate can be changed (configurable between 2400 – 230400). Ensure that any devices or systems connected are also updated to ensure data will still flow between the Bathy2 and external devices.

Parity can also be changed – options are: None, Odd, Even.

RS485 Modes – options are:

- OFF – Disabled
- ON – Full Duplex
- ON – Half Duplex
- ON - Half Duplex (No command echo)

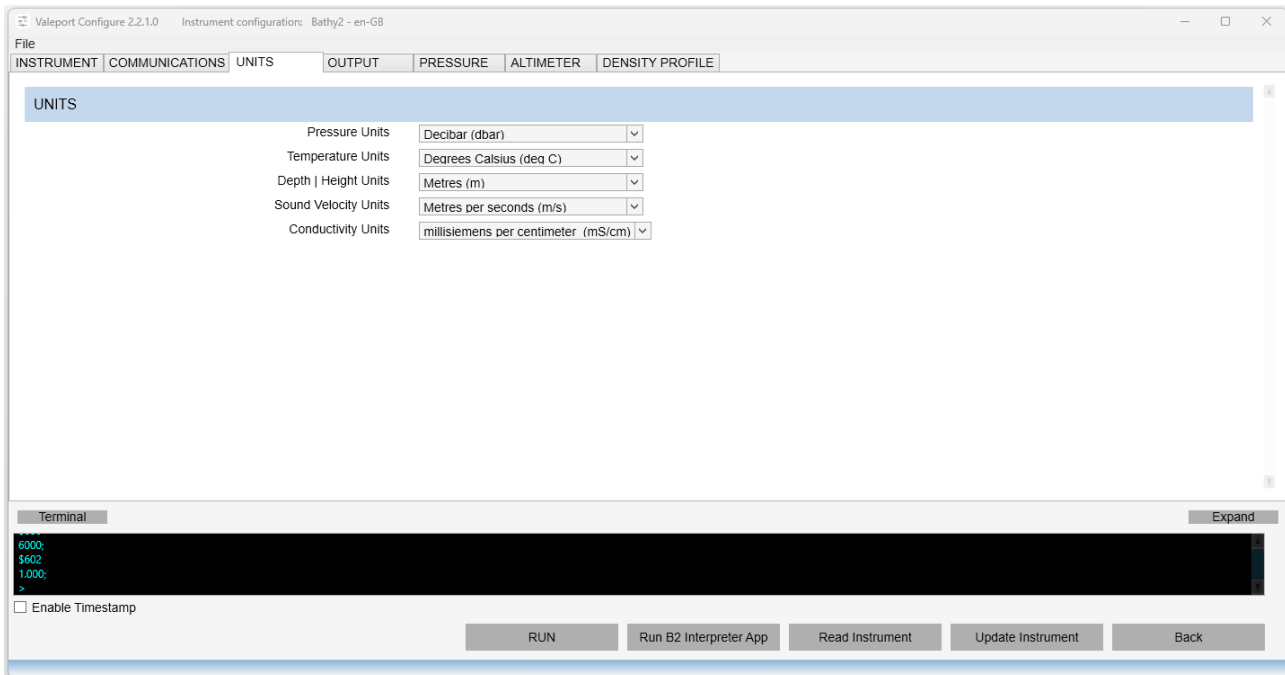
Modbus RTU settings can be adjusted, including setting the Modbus address and Status to ON or OFF.

Please note, Modbus Status must be ON to operate with the Interpreter App.

Click **Update Instrument** to apply all changes.

7.2.3 Configure App – UNITS Tab

Select the required units from the dropdown menus.



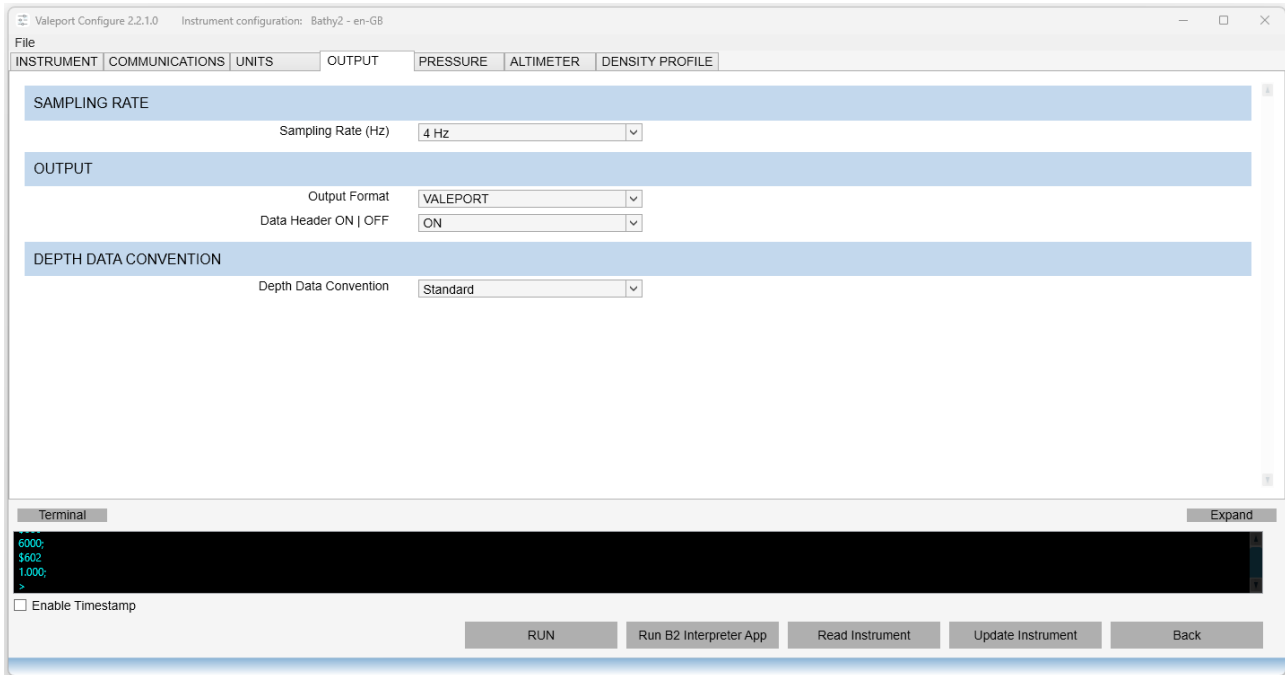
The following units can be selected for the parameters listed below, however any subsequent calculations within Bathy2 Interpreter should use only the standard units (highlighted in bold) – otherwise erroneous calculations may occur.

| | |
|----------------|---------------------------------------------------------------------------------|
| Pressure | Decibar (dBar) , Pascal (Pa), PSI |
| Temperature | Celsius (°C) , Fahrenheit (°F) |
| Depth/Height | Metres (m) , Feet (f) |
| Sound Velocity | Metres/second (m/s) , Feet/second (f/s) |
| Conductivity | Milisiemens per centimetre (mS/cm) , Microsiemens per centimetre (µS/cm) |

click  to apply all changes.

For use with Bathy2 Interpreter software, units of measurement must be set to default: Pressure (dBar), Temperature (°C), Depth/Height (m), Sound Velocity (m/s) and Conductivity (mS/cm).

7.2.4 Configure App – OUPUT Tab



7.2.4.1 SAMPLING RATE

- Set your Sampling rate – 1, 2, 4 or 8Hz

7.2.4.2 OUTPUT

Use the dropdown menu to select your output string. Options are: Valeport, BathyPack, DigiQuartz, SeaKing Long, SeaKing Long Decimal, UK90 STD, Winson Proc and Winson Proc Subsea. Further descriptions of the data formats are presented in Section 9.

Data will be displayed in the terminal window at the base of the page in the format selected within the 'Output' tab.

VALEPORT must be selected if you intend to run the Bathy2 Interpreter App. This guarantees that any format conversions are calculated correctly rather than potentially applying multiple conversions and rounding errors, etc.

WINSON PROC - SPECIFIC

When using the Winson Proc output there are a couple of options within the output string: Winson Proc Bathy System code is a user definable 3 number string its default is 055 see Format: WINSON_PROC

Winson Proc (Subsea) Prefix this allows the input of a user definable 12 charter prefix its default is '%D0074042700'.

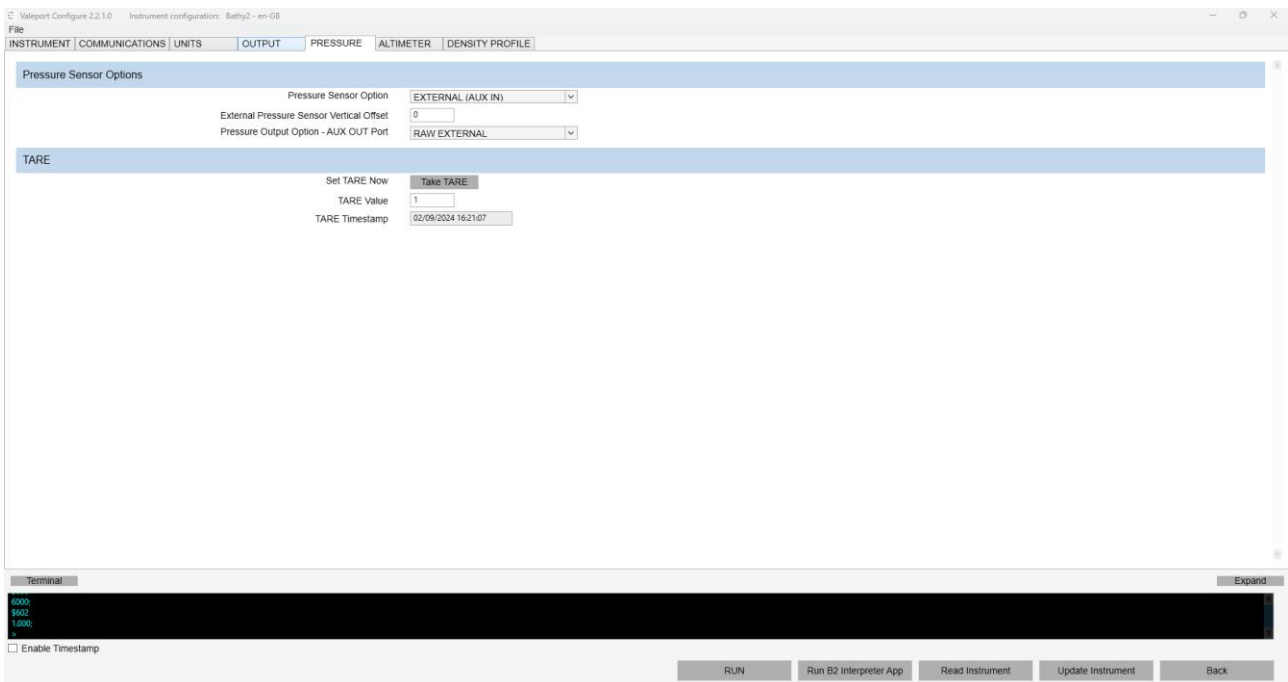
Sampling rate can be adjusted between 1 – 8 Hz. For output data formats such as Winson Proc and SeaKing Long, a minimum of 4 Hz data is required.

7.2.4.3 DEPTH DATA CONVENTION

Select a standard positive depth value or a TEOS10 negative depth value click

to apply all changes.

7.2.5 Configure App – PRESSURE Tab



7.2.5.1 Pressure Sensor Options:

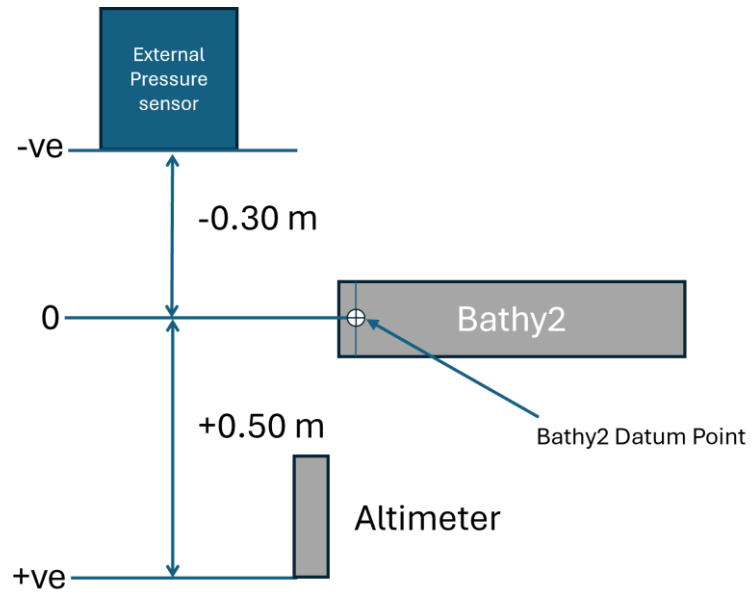
Select which pressure sensor to use for the Calculated Depth: either internal or external, if one is connected.

- External pressure sensor offset (in meters)
 - If your external pressure sensor is vertically below the Bathy2, enter a positive offset
 - If your external pressure sensor is vertically above the Bathy2, enter a negative offset
 - this value is added to the depth if the External Pressure sensor is selected
 - the offset should be referenced to the Bathy2 datum point.
- Pressure Output Option AUX OUT (INS) port
 - A RAW data output is directly from the pressure sensor in its native format and update rate
 - BATHY2 SELECTED is the selected Pressure Sensor Option device in PPPP.PP<CRLF> format | Bathy2 sampling rate | 115200 baud

7.2.5.2 Tare

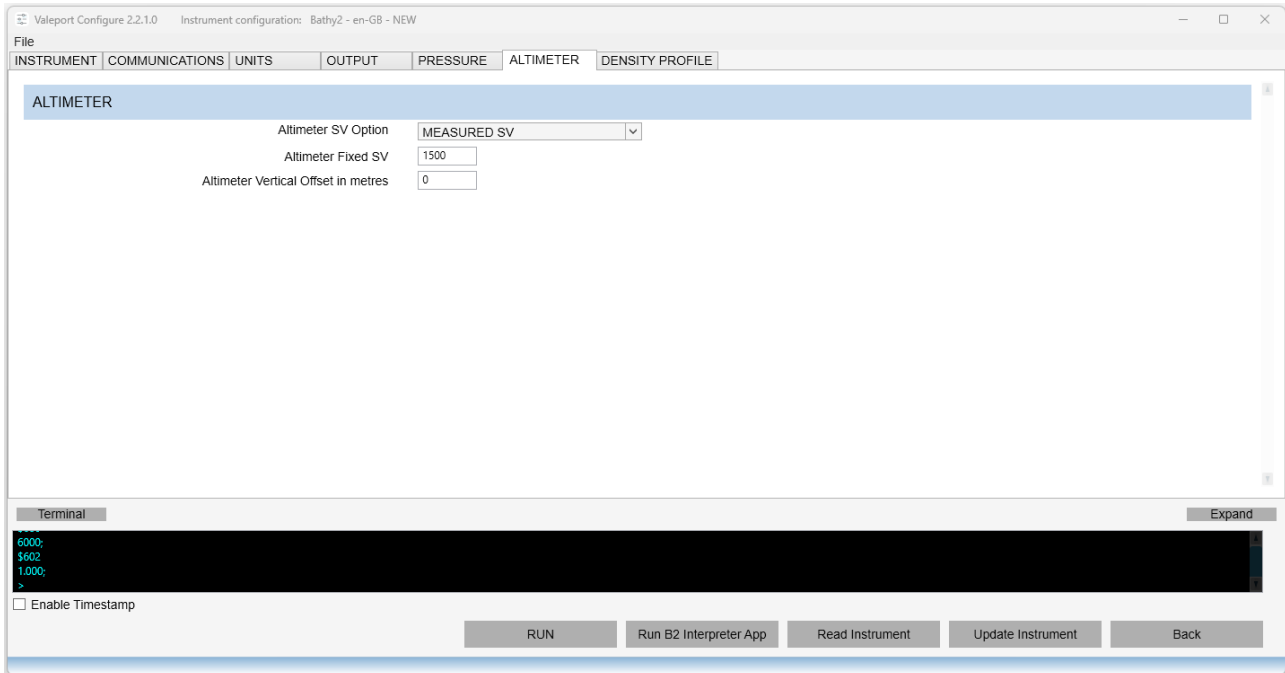
- Use the button to observe and apply a Tare value
 - only to be used to remove atmospheric data while on the surface – max value 20 dBar
- Tare Value – this is the value of the Tare observed and applied OR set a manual Tare in the window and click on 'Update Instrument' to apply
- Tare Timestamp – the time at which a TARE was observed

click  to apply all changes.



7.2.6 Configure App – ALTIMETER Tab

Configure an Altimeter, if fitted

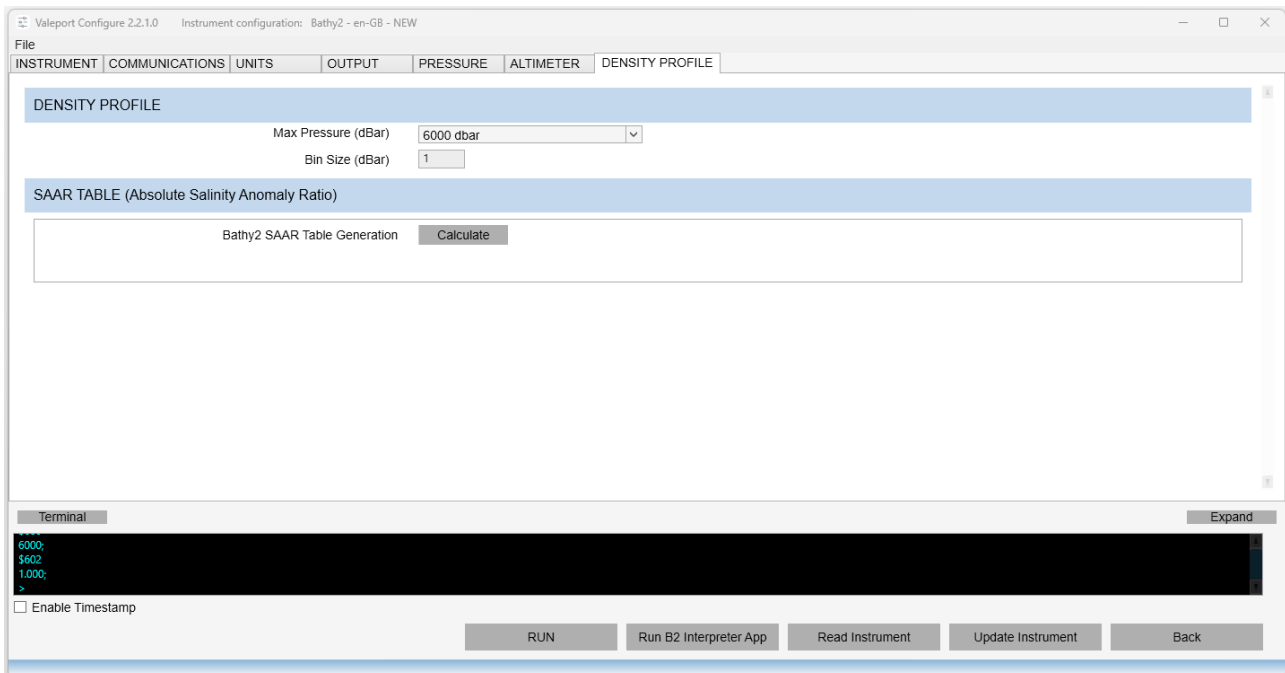


- Altimeter SV Option – use the dropdown menu to select which sound velocity you would like to use with the Altimeter – measured using the SV sensor, calculated (TEOS10) or a fixed value
- Altimeter Fixed SV - If you want to use a fixed sound velocity input it here
- Altimeter Vertical Offset – offset from Bathy2 datum – in metres
 - This value is added to the Altimeter Height if an Altimeter is interfaced
 - If your altimeter is vertically below your Bathy2 datum, enter a positive number.
 - If your altimeter is vertically above your Bathy2 datum, enter a negative number.

click  to apply all changes

7.2.7 Configure App – DENSITY PROFILE Tab

This Tab is where the Density Profile is defined and the Absolute Salinity Anomaly Ratio (SAAR) Table is generated.



Density Profile


The relationship between pressure and depth is not simple and is a function of the water density. More specifically, the water density at every single point in the water column affects the pressure-depth relationship at the bottom. It is, therefore, a requirement to know the density of water at every point above the pressure sensor to accurately calculate the depth from the pressure value.

The main purpose of the Bathy2 is to produce a density corrected depth table known as SAAR (Absolute Salinity Anomaly Ratio) Table. This process takes in account variations in seawater density due to salinity, temperature and pressure.

- Max Pressure (dBar) – what is the maximum depth of your survey site?
 - This value must be greater than that depth on site
 - The greater the selected depth the larger the observation bins will be and the coarser the profile – fewer bins
- Bin Size (dBar) – read only – the bin size in dBar
 - calculated by dividing the Max Pressure by 6000
 - The profile is made up of 6000 lines.

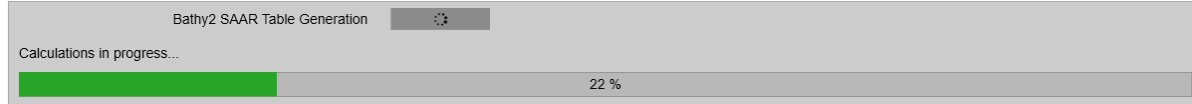
click  to apply all changes

SAAR Table

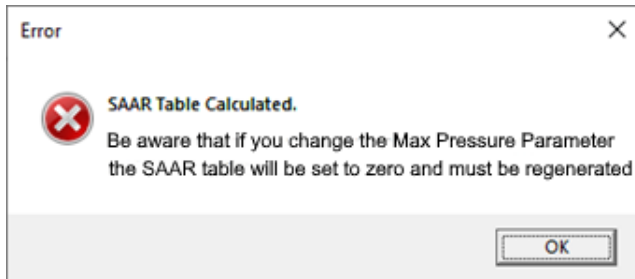
- Bathy2 SAAR Table Generation – use the  button to generate the table and program it to the Bathy2.
 - Before Clicking the button, you must have:
 - defined your site Latitude and Longitude – INSTRUMENT Tab
 - Selected the Max Pressure on site and therefore, the bin size for the profile
 - You can follow progress of the process:


Section 7 | Setting Up the Bathy2

SAAR TABLE (Absolute Salinity Anomaly Ratio)



On completion you will be presented with the following dialogue box:



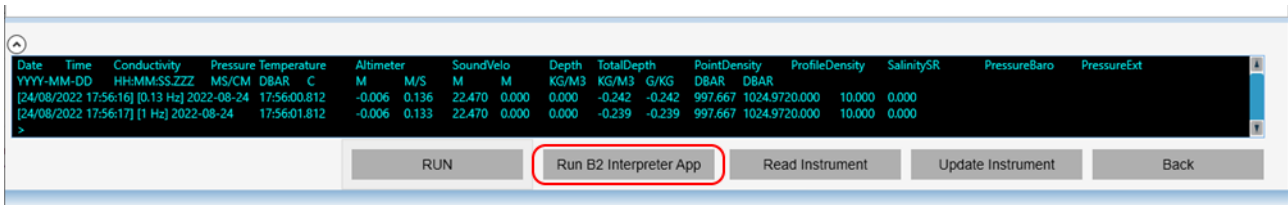
If you change the Max Pressure (dBar) setting the SAAR Table will be reset in the instrument
You must regenerate the table using the  button
The SAAR Table generation tool is not valid for either the Baltic or Caspian Sea

7.3 Bathy2 Interpreter App

The Bathy2 Interpreter App is provided alongside the Valeport Configure App to provide a mechanism to:

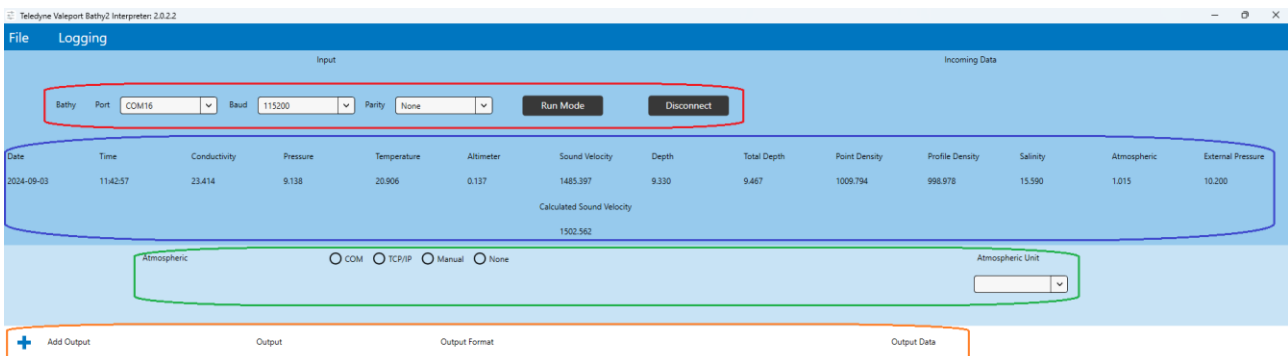
1. Distribute the Bathy2 data to a number of COM ports that can be of different format and baud rate
2. Apply atmospheric pressure data corrections to the instrument

The App can be initiated from Configure or run independently.



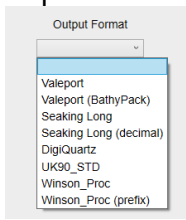
7.3.1 Configuring the Interpreter App

Launch the program:



- Set the Bathy2 COMs port up as required
- click to receive data. **The Bathy2 must be set to VALEPORT output format.**
- select how you will receive Atmospheric data – serially, TCP/IP or Manually
 - data should be in dBar and format: PPPP.PPP<CRLF>
 - a manually entered value can be typed into the window - click to send it to the Bathy2

- You can select up to 5 output string of the same or different format. Configure the port as required and select the output string format from the dropdown menu:



7.4 Interfacing an Altimeter

To configure a VA500 Altimeter to operate with a Bathy2, send the following commands to the Altimeter using a terminal program:

```
#082;TRITECH<CR><LF> (data string output format)
#059;9600<CR><LF> (baud rate – n.b. you may need to reconnect to the instrument)
#039;3<CR><LF> (sampling mode)
```

The output from the Altimeter must be in this form for the Bathy2 to recognise the data.

Offset:

It is common for an altimeter to be positioned above the lowest point of the vehicle to which it is fitted. Enter a value (in metres) in the Offset box that equates to the distance between the altimeter and the bottom of the vehicle. This value will be subtracted from any altimeter data, therefore giving distance below vehicle, rather than distance below sensor.

7.5 Interfacing an External Pressure Sensor through AUX IN (Digiquartz) Port

For an external pressure sensor to be interfaced to the Bathy2 it must be set up as follows:

- Standard Digiquartz data string e.g. *00019.914<CRLF>
- 115200 baud rate, 8N1
- 4Hz update rate

7.6 Interfacing to an INS through AUX out 5 port subconn (INS)

A RAW data output is directly from the pressure sensor in its native format and update rate

BATHY2 SELECTED is the selected Pressure Sensor Option device in PPPP.PP<CRLF> format |
Bathy2 sampling rate | 115200 baud

SubConn MCBH4F for AUX output (INS)

For further information on the functionality of Bathy2 Interpreter, please see the separate [Bathy2 Interpreter Manual](#).

8 Manual Setup Commands

| Code | Followed by | Operation |
|-------|---------------------------|---------------------------------------------------------------------------------------------------|
| \$003 | <CR><LF> | Read: serial number of the instrument |
| \$009 | ;pp.ppp<CR><LF> | Set: Tare Value |
| \$010 | <CR><LF> | Read: Current Tare |
| \$011 | <CR><LF> | Read: Site information |
| \$012 | ;Site_Information<CR><LF> | Set: Site Information |
| \$014 | <CR><LF> | Read: firmware version of the instrument |
| \$015 | <CR><LF> | Read: Tare Timestamp |
| \$016 | ;x<CR><LF> | Set: Sampling Rate – 1, 2, 4, 8 Hz \$016;4 = 4Hz |
| \$017 | <CR><LF> | Read: Sampling Rate |
| \$019 | ;xxxx<CR><LF> | Set: baud rate in the instrument \$019; 115200 = 115200 baud |
| \$020 | ;header<CR><LF> | Set: Header output status \$020;0 = OFF \$020;1 = ON |
| \$021 | <CR><LF> | Read: Header output status |
| \$022 | ;P<CR><LF> | Set: Pressure output units \$022;0 = dBar \$022;1 = Pascal (Pa) \$022;2 = PSI |
| \$023 | <CR><LF> | Read: Pressure output units |
| \$024 | ;T<CR><LF> | Set: Temperature output units \$024;0 = °C \$024;1 = °F |
| \$025 | <CR><LF> | Read: Temperature output units |
| \$026 | ;d<CR><LF> | Set: output units for Depth/Height \$026;0 = Metres \$026;1 = Feet |
| \$027 | <CR><LF> | Read: output units for Depth/Height |
| \$028 | <CR><LF> | Set: units into run mode |
| \$030 | ;c unit<CR><LF> | Set: Sound Velocity output units \$030;0 = M\s \$030;1 = F\sF |
| \$031 | <CR><LF> | Read: Sound Velocity output units |
| \$032 | ;C<CR><LF> | Set: Conductivity output units \$032;0 = mS/cm \$032;1 = µS/cm |
| \$033 | <CR><LF> | Read: Conductivity output units |
| \$036 | ;time_format<CR><LF> | Set: time output format – enable for milliseconds \$036;0 = HH:mm:ss \$036;1 = HH:mm:ss:zzz |
| \$042 | ;parity<CR><LF> | Set: Run Time Parity \$042;0 = None \$042;1 = Odd \$042;2 = Even |
| \$043 | <CR><LF> | Read: Parity |
| \$048 | ;0<CR><LF> | Set: External Pressure Sensor (AUX IN) offset |
| \$049 | <CR><LF> | Read: External Pressure Sensor (AUX IN) offset |
| \$052 | ;bathy_rtc<CR><LF> | Set: Instrument Time ;dd;mm;yy;hh;mm;ss<CR> |
| \$053 | <CR><LF> | Read: Instrument Time |
| \$409 | ;modbus_slaveid<CR><LF> | Set: Modbus Address (d35 = # d36 = \$ do not use) |
| \$410 | <CR><LF> | Read: Modbus Address |

| Code | Followed by | Operation |
|-------|---------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| \$411 | ;modbus_mode<CR><LF> | Set: Modbus Status \$411;0 = OFF \$411;1 = ON |
| \$412 | <CR><LF> | Read: Modbus Mode |
| \$500 | ;altimeter_sv_option<CR><LF> | Set: Altimeter Sound Velocity option \$500;0 = Measured \$500;1 = Calculated (TEOS 10) \$500;2 = Fixed (see cmd \$506) |
| \$501 | <CR><LF> | Read: Altimeter Sound Velocity option |
| \$504 | ;altimeter_offset<CR><LF> | Set: Altimeter offset (in metres, always) \$504;-1.20 |
| \$505 | <CR><LF> | Read: Altimeter offset |
| \$506 | ;altimeter_fixedsSVvalue<CR><LF> | Set: Altimeter fixed Sound Velocity value (in m\s, always) \$506;1500 |
| \$507 | <CR><LF> | Read: Altimeter fixed Sound Velocity value |
| \$600 | <CR><LF> | Read: Density Profile maximum pressure (dBar) |
| \$601 | ;6000<CR><LF> | Set: Density Profile maximum pressure (dBar) \$601;0 = 600 dBar \$601;0 = 1500 dBar \$601;1 = 3000 dBar \$601;2 = 6000 dBar |
| \$602 | <CR><LF> | Read: Density Profile resolution |
| \$604 | <CR><LF> | Read: Data Output format |
| \$605 | ;output_format<CR><LF> | Set: Data Output format \$605;0 = VALEPORT \$605;3 = SEAKING LONG \$605;4 = SEAKING LONG (DECIMAL) \$605;5 = DIGIQUARTZ \$605;6 = UK90_STD \$605;7 = WINSON_PROC \$605;14 = WINSON_PROC (SUBSEA) \$605;8 = IN-SITU SENSORS \$605;9 = SVX2 |
| \$606 | <CR><LF> | Read: Site Latitude |
| \$607 | ;user_Latitude<CR><LF> | Set: Site Latitude (-90 to 90) in Decimal Degrees \$607;50.426 = 50° 25' 34" North \$607;-50.426 = 50° 25' 34" South |
| \$608 | <CR><LF> | Read: Site Longitude |
| \$609 | ;user_Longitude<CR><LF> | Set: Site Longitude (-180 to 180) in Decimal Degrees \$609;90.426 = 90° 25' 34" East \$609;-90.426 = 90° 25' 34" West |
| \$613 | ;table;start line;endline <CR><LF> | Output: Memory Tables [0 1 2];start line;end line Where [0] = All [1] = Density [2] = SAAR TABLE - INDEX and SAAR VALUE For Example - \$613;0;0,6000" |
| \$622 | ;rs485_mode<CR><LF> | Set: RS485 mode \$622;0 = OFF - Disabled \$622;1 = ON – Full Duplex \$622;2 = ON – Half Duplex \$622;3 = ON – Half Duplex (no cmd echo) |

| Code | Followed by | Operation |
|-------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|
| \$623 | <CR><LF> | Read: RS485 mode |
| \$630 | ;pressure_ins<CR><LF> | Set: AUX port Pressure output option \$630;0 = RAW INTERNAL \$630;1 = RAW EXTERNAL \$630;2 = CORRECTED (pressure sensor option - \$633) |
| \$631 | <CR><LF> | Read: AUX port Pressure output option |
| \$632 | <CR><LF> | Read: Pressure Options |
| \$633 | ;pressure_options<CR><LF> | Set: Pressure Sensor used in calculations \$633;0 = INTERNAL \$633;1 = EXTERNAL |
| \$637 | ;winson_proc_prefix<CR><LF> | Set: Winson Proc (Subsea) Prefix |
| \$638 | <CR><LF> | Read Winson Proc (subsea) prefix |
| \$639 | ;Bathy_system code <CR><LF> | Set: Winson Proc Bathymetric System Code |
| \$640 | <CR><LF> | Read: Winson Proc Bathymetric System Code |

8.1 Pressure Tare

The Interchangeable pressure sensor fitted in the Bathy2 measures absolute pressure, that is, it includes atmospheric pressure. The pressure Tare function allows the atmospheric pressure (as measured by the sensor, normally before deployment) to be removed from the observations so the output is simply the pressure of water.

The pressure Tare observation should be taken with the sensor in the same orientation as it will be deployed (horizontal, pointing up or pointing down) to negate any effects of the weight of the sensing element itself

- Whilst this effect is small, it is an unnecessary contribution to the error budget

| Code | Description |
|----------------|-------------------------------------------------------------------------------|
| \$009 | Measure Tare (observes current pressure reading and programs the Tare value) |
| \$009;nnnn.nnn | Sets specific Tare in dBar Example: #009;10.325 sets Tare to 10.325dBar |
| \$010 | Read the current Tare value in the units set at the time it was observed |

8.2 Set Latitude and Longitude

The Latitude and Longitude are required to calculate the Absolute Salinity Anomaly Ratio lookup table.

| # Code | Description |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| \$607;nn.nnn | Sets the local operating latitude in decimal degrees Example: \$607;50.426 Sets latitude to 50.426° (50° 25' 34") North North is positive South is negative |
| \$606 | Read the Latitude set in the instrument |
| \$609;ee.eee | Sets the local operating longitude in decimal degrees Example: \$609;-3.426 Sets latitude to 3.426° (3° 25' 34") West East is positive West is negative |
| \$608 | Read the Longitude set in the instrument |

9 Data Output Formats

The Bathy2 has a selection of different data output formats built in, allowing easy interface to software packages and third-party instrumentation.

The Bathy2 Interpreter App is supplied with the Bathy2 as part of the Configure App. The Interpreter can be used to distribute up to 5 data strings of different formats to 5 COM ports or TCP/IP addresses.

9.1 Data String Formats

9.1.1 Format: VALEPORT

This is the default output string and must be selected to operate with the Bathy2 Interpreter App.

| Command: | \$605;0 | | |
|------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|--------------|-------------------|
| Format: | yyyy-mm-dd^hh:mm:ss.sss^CC.CCC^pppp.ppp^TT.TTT^hh.hhh^cccc.ccc^pppp.ppp^dddd.ddd^dddd.ddd^DDDD.DDD^DDDD.DDDD^s.sss^AA.AAA<CR><LF> | | |
| Data String | Field | Format | Units |
| | Date | yyyy-mm-dd | yyyy-mm-dd |
| | Time | hh:mm:ss.sss | HH:mm:ss.sss |
| | Conductivity | CC.CCC | mS/cm μS/cm |
| | Pressure (selected) | pppp.ppp | dbar Pa PSI |
| | Temperature | tt.ttt | °C °F |
| | Altimeter height (zero if not interfaced) | hh.hhh | m ft |
| | Sound Velocity (measured) | cccc.ccc | m/s ft/s |
| | Depth | dddd.ddd | m ft |
| | Total Depth (Instrument depth + Altimeter) | dddd.ddd | m ft |
| | Point Density | DDDD.DDD | Kg/m ³ |
| | Profile Density | DDDD.DDD | Kg/m ³ |
| | Salinity | s.sss | g/kg |
| | Barometric Pressure\TARE value | pp.ppp | dbar |
| | External Pressure Sensor Data (zero if not interfaced) | pp.ppp | dbar |
| | Terminator | <CR><LF> | |
| Notes: The string data delimiter is a Tab (^) <CR> = Carriage Return <LF> = Line Feed | | | |

| Date | Time | Cond'tivity | Pressure | Temp | Altimeter | Sound Velocity | Depth | Total Depth | Point Density | Profile Density | Salinity | Pressure Baro | Pressure Ext |
|------------|----------|-------------|----------|--------|-----------|----------------|-------|-------------|-------------------|-------------------|----------|---------------|--------------|
| YYYY-MM-DD | HH:mm:SS | mS/cm | dbar | deg C | m | m/s | m | m | kg/m ³ | kg/m ³ | g/kg | dbar | dbar |
| 2021-11-19 | 17:13:20 | 0.126 | 10.317 | 18.562 | 0.120 | 1478.152 | 0.252 | 0.372 | 998.546 | 1009.402 | 0.068 | 10.100 | 10.374 |
| 2021-11-19 | 17:13:20 | 0.120 | 10.317 | 18.562 | 0.120 | 1478.152 | 0.252 | 0.372 | 998.544 | 1009.402 | 0.065 | 10.100 | 10.376 |
| 2021-11-19 | 17:13:20 | 0.118 | 10.317 | 18.561 | 0.120 | 1478.154 | 0.252 | 0.372 | 998.543 | 1009.402 | 0.064 | 10.100 | 10.376 |

9.1.1.1 Header Message

When set to VALEPORT Output format a Header message can be sent each time the instrument is put into a run mode (\$028):

| Code | Description |
|---------|---------------------------------------------------------------------------------------------------|
| \$020;n | Enable Disable Header output \$020;0 disables Header output \$020;1 enables Header output |
| \$021 | Read header |

The message contains the following information

>[HEADER]

| Field | Setup Function | Read Parameter |
|-------------------------------------------|----------------|----------------|
| DataStartTime=09/08/2022 15:32:39 | - | |
| Latitude=-3.0000 | \$607 | \$606 |
| Longitude=54.0000 | \$609 | \$608 |
| DeviceSeries=Bathy2 | - | |
| VpdVersion=2 | - | |
| InstrumentCode=01300030 | - | \$007 |
| MainFirmware=04007182A9 Jul 8 2022 15:33 | - | \$014 |
| BathyFirmware=04007184A1 10/01/2022 17:00 | | |
| SiteInfo=Factory Test Site | \$012 | \$011 |
| SerialNumber=XXXXX | - | \$003 |
| DensityProfileMaxPressure=xxxxx | \$601 | \$600 |
| DensityProfileResolution=xxxx | - | \$602 |
| SamplingInterval=1.000 | \$016 | \$017 |

Instrument output format

| [COLUMNS] | Type | Format |
|----------------------------------------------------------------------|--------|-------------------|
| Date | String | yyyy-mm-dd |
| Time | String | HH:mm:ss.sss |
| Conductivity | Float | mS/cm µS/cm |
| Pressure | Float | dbar Pa PSI |
| Temperature | Float | °C °F |
| Altimeter (zero if not interfaced) selected SV and offset applied | Float | m ft |
| Sound Velocity - observed | Float | m/s ft/s |
| Depth | Float | m ft |
| Total Depth (Calculated depth + Altimeter) | Float | m ft |
| Point Density | Float | Kg/m ³ |
| Profile Density | Float | Kg/m ³ |
| Salinity | Float | g/kg |
| Pressure Barometric (TARE if not interfaced) | Float | dbar |
| Pressure External AUX IN port (zero if not interfaced) | Float | dbar |

* - single setting

9.1.2 Format: VALEPORT (BathyPack)

Only configurable in the Interpreter app, this replicates the Midas BathyPack original output format.

| Command | NA (only in the Interpreter application) |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Format | Date<TAB>Time<TAB>Conductivity<TAB>Pressure<TAB>Temperature<TAB>Altimeter<TAB>SV Measured<TAB>SV Calculated<TAB>Depth<TAB>Total Depth<TAB>Point Density<TAB>Density Profile<TAB>Salinity<TAB>Barometric Pressure<TAB>IPS 1<TAB>IPS 2<TAB>IPS 3<TAB>IPS 4<TAB>IPS 1 Depth<TAB>IPS 2 Depth<TAB>IPS 3 Depth<TAB>IPS 4 Depth<TAB><CR><LF> |

| Parameter | Format / Notes |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Date | dd/mm/yyyy |
| Time | HH:mm:ss |
| Conductivity | Real time data from BathyPack in mS/cm |
| Pressure | Real time data from BathyPack in dBar |
| Temperature | Real time data from BathyPack in °C |
| Altimeter | Real time data from accessory altimeter (if fitted) in metres |
| SV Measured | Time of flight Sound Velocity data from BathyPack in m/s |
| SV Calculated | Sound Velocity calculated by BathyLog from CTD parameters using Chen & Millero, in m/s |
| Depth | Actual Depth of BathyPack in metres, as calculated by BathyLog software |
| Total Depth | Total water depth in metres, calculated by BathyLog as sum of Actual Depth and Altimeter output (if fitted) |
| Point Density | Theoretical Density value (kg/m ³) from EOS80 formula, calculated by BathyLog |
| Density Profile | Actual Density (kg/m ³) taking into account the integrated density variations in the water column |
| Salinity | Salinity value of the water, calculated by BathyLog using PSS78 formula (no units) |
| Barometric Pressure | Real time data from dedicated Air Pressure sensor, if available (mBar) |
| IPSn | Actual Pressure in dBar from an accessory mini or Modus IPS sensor, if fitted (up to 4 max) |
| IPSn Depth | Actual Depth in metres from accessory sensor, calculated by BathyLog using the Density profile from the BathyPack itself. |
| Terminator | <CR><LF> |
| Notes: ASCII Tab delimited format If a sensor is not fitted or available, then parameters from that device will not be included in the string. <CR> = Carriage Return <LF> = Line Feed | |

9.1.3 Format: Seaking Long

| | |
|---------|------------------------------------------------------------------------------------------------------------------------|
| Command | \$605;3 |
| Format | %D007004270313083000+0000000000+000000000000000000000000009980000000000000000 +0000000000+1915000060000000998031007 |

| Parameter | Units | Format | Characters |
|-------------------------------------------------------------------------------------------|------------------------|----------------|------------|
| Prefix | NA | [%D0070042703] | 12 |
| Time 24 hour clock Time | HH:mm:ss.ss | [00000000] | 8 |
| Depth [Vehicle datum depth] | mm | [+0000000000] | 11 |
| Altimeter (sv Corrected) [Vehicle datum altitude] | mm | [+0000000000] | 11 |
| Sound Velocity | dm/s | [00000] | 5 |
| Mean Density | g/l | [0000000000] | 10 |
| Barometric Pressure | mbar | [00000] | 5 |
| Measured Pressure (Selected) | dbar | [0000000000] | 10 |
| Altimeter Clicks | NA | [+0000000000] | 11 |
| System Temperature | 1/100 th °C | [+0000] | 5 |
| Conductivity | mS/cm | [00000] | 5 |
| local density calculated from conductivity | 100g/l | [0000000000] | 10 |
| Bathy System Code | NA | [000] | 3 |
| Parameter System | NA | [000] | 3 |
| Terminator | | <CR><LF> | 2 |
| Notes Seaking System Parameter System <CR> = Carriage Return <LF> = Line Feed | | | |

9.1.4 Format Seaking Long (Decimal)

| | |
|---------|-------------------------------------------------------------------------------------------------------------------|
| Command | \$605;4 |
| Format | %D007004270313254000+000000.000+00000000000000.000000009980000000000000 0+0000000000+19.2000060000000998031007 |

| Parameter | Units | Format | Characters |
|------------------------------------------------------|------------------------|----------------|------------|
| Prefix | NA | [%D0070042703] | 12 |
| Time 24 hour clock | HH:mm:ss.ss | [00000000] | 8 |
| Depth [Vehicle datum depth] | mm | [+000000.000] | 11 |
| Altimeter (sv Corrected) [Vehicle datum altitude] | mm | [+0000000000] | 11 |
| Sound Velocity | dm/s | [0000.0] | 5 |
| Mean Density | g/l | [0000000000] | 10 |
| Barometric Pressure | mbar | [00000] | 5 |
| Measured Pressure (Selected) | dbar | [0000000000] | 10 |
| Altimeter Clicks | NA | [+0000000000] | 11 |
| System Temperature | 1/100 th °C | [-10.0] | 5 |
| Conductivity | mS/cm | [00000] | 5 |
| local density calculated from conductivity | 100g/l | [0000000000] | 10 |
| Bathy System Code | NA | [000] | 3 |
| Parameter System | NA | [000] | 3 |
| Terminator | | <CR><LF> | 2 |

9.1.5 Format: Digiquartz

This format emulates the Paroscientific Digiquartz sensor output

| | |
|----------|---------------|
| Command: | \$605;5 |
| Format | *00001480.722 |

9.1.6 Format: UK90_STD

| | |
|----------|-------------------------------------------------------|
| Command: | \$605;6 |
| Format | D0010.38 A1000.00 A1000.00 T20 P0900 V00000 d99813 H0 |

| Parameter | Units | Format | Characters |
|-----------------------------------------------------------------------------------------------------|-------------------|------------|------------|
| Depth in metres (includes entered vertical or zero offsets) | m | [D0000.00] | 8 |
| Space character | NA | □ | 1 |
| Altitude 1 in metres (includes entered vertical offset) | m | [A0000.00] | 8 |
| Space character | NA | □ | 1 |
| Altitude 2 in metres (includes entered vertical offset) | m | [A000.00] | 8 |
| Space character | NA | □ | 1 |
| Temperature in degrees Centigrade | °C | [T00] | 3 |
| 7 x Space characters | NA | □ | 7 |
| Atmospheric pressure (either manually entered value or obtained from the surface Barometric sensor) | mbar | [P0000] | 5 |
| Space character | NA | □ | 1 |
| Sound velocity*10 (calculated from Conductivity readings or 'Manual' VOS if no CT probe) | m/s | [V00000] | 6 |
| Space character | NA | □ | 1 |
| Mean density of seawater * 10000 (or Manual entered value if no CT probe readings) | Kg/m ³ | [D00000] | 6 |
| Space character | NA | □ | 1 |
| Height in metres of Barometric Sensor above Sea level | m | [H000] | 4 |
| Terminator | NA | <CR><LF> | |

| | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------|----|
| Depth (This does no include the Bathy position offset for raw mode and includes these corrections in processed mode) 136.921 metres = 136921 (+0000136921) | mm | [+0000000000] | 11 |
| Time 09:45:33:74 = 09453374 | HHmms scc | [00000000] | 8 |
| Terminator | NA | <CR><LF> | |

9.1.8 Format: WINSON_PROC (Subsea)

| | |
|-------------|---------------------------------------------------------------------------------------------------------------|
| Command: | \$605;14 |
| Format | %D0074042700+001680000000000+0000000000000000000000+0000000142+016820007914748+0000000000007+0000000000000000 |
| Data String | %D0074042700 + WinsonProc() |
| Note | the prefix '%D0074042700' can be changed it is a 12 Character user definable field. |

9.1.9 Format: IN_SITU SENSORS

| | |
|----------|---------|
| Command: | \$605;8 |
|----------|---------|

9.1.10 Format: VALEPORT SVX2

ACSII Format

| | |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Command: | \$605;9 |
| Format 1 | 1483.576 M/SEC 0010.122 M 0021.291 C 0000.142 MS/CM |
| Format 2 | 1483.576 M/SEC 0010.122 M 0021.291 C 0000.142 MS/CM 0000.124 PSU |
| Note | This format is TAB delimited This output uses M/SEC not M/S Depth will only be output in Metres or Feet if a Tare has been applied and the Latitude has been supplied. |

Format 1

| Parameter | Units | Format | Characters |
|----------------|----------------|------------------|------------|
| Sound Velocity | M/SEC or F/S | [0000.000^M/SEC] | 8 |
| Depth (*) (**) | M or DBAR or F | [0000.000^M] | 8 |
| Temperature | °C | [0000.000^C] | 8 |
| Conductivity | MS/CM | [0000.000^MS/CM] | 8 |
| Terminator | NA | <CR><LF> | |

Format 2 (If internal salinity calculation is activated)

| Parameter | Units | Format | Characters |
|----------------|----------------|------------------|------------|
| Sound Velocity | M/SEC or F/S | [0000.000^M/SEC] | 8 |
| Depth | M or DBAR or F | [0000.000^M] | 8 |
| Temperature | °C | [0000.000^C] | 8 |
| Conductivity | MS/CM | [0000.000^MS/CM] | 14 |
| Salinity | PSU | [0000.000^PSU] | 12 |
| Terminator | NA | <CR><LF> | |

9.2 Modbus RTU over RS485

Modbus RTU as implemented in the Bathy2 is an industry standard interface protocol that will run over RS232 or RS485.

The Baud rate is variable 4800 to 19200 with 8N1 or 8E1 framing.

This conforms to the minimum requirements of the MODBUS standard of 9600 and 19200 baud with 8E1 framing.

Full set up and operation through Modbus is outside the scope of this document, please contact Valeport for further details.

See section [Instrument Communications Setup](#) for details on how to enable Modbus

10 Wiring Details

1.1 Bathy2 Main Bulkhead Connector

| 10 Way Female SubConn MCBH10F | Function |
|-------------------------------|--------------------|
| 1 | Power Ground |
| 2 | Power +V |
| 3 | RS422TxA |
| 4 | RS422TxB |
| 5 | RS422RxA |
| 6 | RS422RxB |
| 7 | RS232 Tx (To PC) |
| 8 | RS232 Rx (From PC) |
| 9 | RS232 Ground |
| 10 | N/C |

Note: For half-duplex RS485 communications link Pin 3 to Pin 5, and Pin 4 to Pin 6 in the cable.

1.2 Bathy2 Altimeter Bulkhead Connector

| 6 Way Female SubConn MCBH6F | Function |
|-----------------------------|------------------------------------|
| 1 | Sensor Power Ground / RS232 Ground |
| 2 | RS232 Rx In to Bathy2 |
| 3 | RS232 Tx Out of Bathy2 |
| 4 | Sensor Power (+24V max) |
| 5 | RS485B |
| 6 | RS485A |

1.3 Bathy2 AUX (INS) Bulkhead Connector

| 4 Way Female SubConn MCBH4F | Function |
|-----------------------------|------------------------------------|
| 1 | Sensor Power Ground / RS232 Ground |
| 2 | RS232 Rx In to Bathy2 |
| 3 | RS232 Tx Out of Bathy2 |
| 4 | Not used |

1.4 Bathy2 Digiquartz Bulkhead Connector

| 5 Way Female SubConn MCBH5F | Function |
|-----------------------------|------------------------------------|
| 1 | Sensor Power Ground / RS232 Ground |
| 2 | RS232 Rx In to Bathy2 |
| 3 | RS232 Tx Out of Bathy2 |
| 4 | Sensor Power (+12V max) |
| 5 | Not Used |

1.5 RS232 3m Y lead (as supplied)

| 10 Way Male SubConn MCIL10M | 4mm Banana Plugs | 9 Way D Type | Function |
|-----------------------------|------------------|---------------------|----------------------|
| 1 | BLACK | | Power Ground |
| 2 | RED | | Power +V |
| 3 | | | |
| 4 | | | |
| 5 | | | |
| 6 | | | |
| 7 | | 2 | RS232 Tx (To PC) |
| 8 | | 3 | RS232 Rx (From PC) |
| 9 | | 5 (link to 1,6,8,9) | |
| | | SHELL | RS232 Ground |
| 10 | | | Link to RS232 Ground |

10.1.1 Ethernet Connection

| WIRE TYPE / | WIRE COLOUR | END 1: SCDBH13FT2 SubConn | | FUNCTION |
|-----------------------|--------------|---------------------------|-----|------------------------|
| | | CONNECTOR | PIN | |
| 20 AWG coloured wires | BLACK | 13 Way SubConn Bulkhead | 1 | External Power (-Ve) |
| | WHITE | | 3 | External Power (+Ve) |
| | ORANGE | | 2 | Screen (Not connected) |
| | RED | | 12 | Not connected |
| | GREEN | | 13 | Not connected |
| CAT5E patch cable | WHITE/GREEN | | 11 | Bi-Dir_DA+ (Rx +) |
| | GREEN | | 10 | Bi-Dir_DA- (Rx -) |
| | WHITE/ORANGE | | 9 | Bi-Dir_DB+ (Tx +) |
| | ORANGE | | 8 | Bi-Dir_DB- (Tx -) |
| | WHITE/BLUE | | 7 | Bi-Dir_DC- |
| | BLUE | | 6 | Bi-Dir_DC+ |
| | WHITE/BROWN | | 5 | Bi-Dir_DD+ |
| | BROWN | | 4 | Bi-Dir_DD- |

10.1.1.1 Ethernet Y lead

| END 1: 13 WAY MALE SUBCONN | | WIRE COLOUR | END 2: RJ45 CONNECTOR | | END 3: BANANA PLUG | | FUNCTION | | |
|---------------------------------------|-----|--------------|----------------------------------|-----|--------------------|-----|------------------------|-------------------|--|
| CONNECTOR | PIN | | CONNECTOR | PIN | CONNECTOR | PIN | | | |
| SubConn, 13 way male SCDBH13MBR | 1 | Black | | | Black 4mm Plug | 1 | -V | | |
| | 3 | White | | | Red 4mm Plug | 1 | +V | | |
| | 2 | Orange | | | | | Screen (Not Connected) | | |
| | 4 | Brown | RJ45 Cable Mount Connector | 8 | | | | Bi-Dir_DD- | |
| | 5 | Brown/White | | 7 | | | | Bi-Dir_DD+ | |
| | 6 | Blue | | 4 | | | | Bi-Dir_DC+ | |
| | 7 | Blue/White | | 5 | | | | Bi-Dir_DC- | |
| | 8 | Orange | | 2 | | | | Bi-Dir_DB- (Tx -) | |
| | 9 | Orange/White | | 1 | | | | Bi-Dir_DB+ (Tx +) | |
| | 10 | Green | | 6 | | | | Bi-Dir_DA- (Rx -) | |
| | 11 | Green/White | | 3 | | | | Bi-Dir_DA+ (Rx +) | |
| | 12 | Red | | | | | | Not Connected | |
| | 13 | Green | | | | | | Not Connected | |

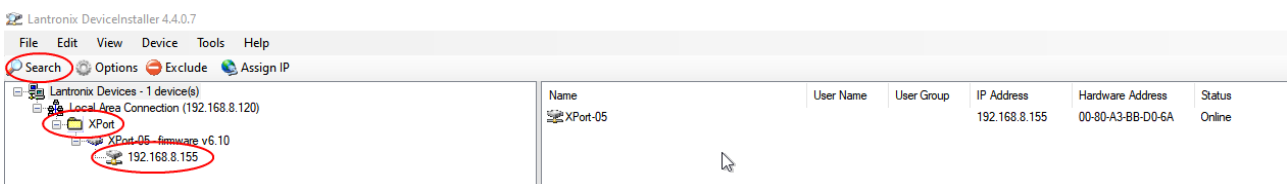
11 Ethernet – Bathy2e

The Bathy2 can be optionally fitted with a Transmission Control Protocol/Internet Protocol (TCP/IP) Ethernet module set up in Dynamic Host Configuration Protocol (DHCP). This means the instrument will automatically be assigned an IP address. Depending on how your router works, it should go back to that IP address each time it is interfaced although this is not guaranteed unless you provide it with a fixed IP in the router configuration.

11.1.1 Setting up Ethernet Connectivity

The Bathy2 has a Lantronix Ethernet module that will need to be configured. You can download the Lantronix Device Installer software from <https://www.lantronix.com/products/deviceinstaller/>.

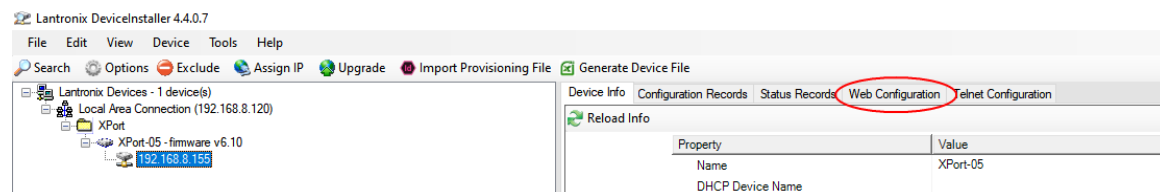
Connect the miniIPS2e to the network and run the software. If the device is not found after a few moments press Search, top left



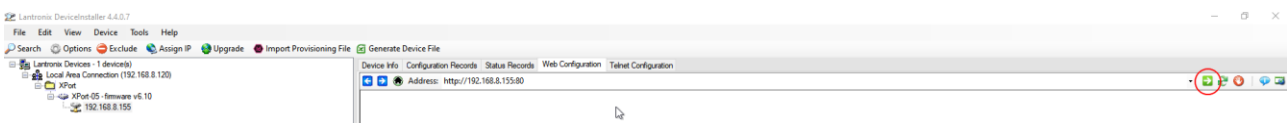
Once the module has been found click on XPort to reveal the IP address - in the example above: 192.168.8.155

Click on the IP Address in the left hand panel to reveal more information in the right hand panel

Select Web Configuration



Select the green arrow to reveal the password entry dialogue



Do not enter a Username or Password - simply select OK



Select: Connection

Ensure settings are similar to those shown below:

Channel 1

Connect Protocol: Protocol: **TCP**

Connect Mode

Passive Connection: Accept Incoming: Yes; Password Required: No; Modem Escape Sequence Pass Through: Yes

Active Connection: Active Connect: None; Start Character: 0x0D (in Hex); Modem Mode: None; Show IP Address After RING: Yes

Endpoint Configuration: Local Port: **50**; Remote Port: 0; Remote Host: 0.0.0.0

Common Options: Telnet Com Port Cntrl: Disable; Connect Response: None; Terminal Name: ; Use Hostlist: No; LED: Blink

Disconnect Mode: On Mdm_Ctrl_In Drop: No; Hard Disconnect: Yes; Inactivity Timeout: 0 : 0 (mins : secs)

OK

Protocol: TCP

The Local Port number should be less than 10000.

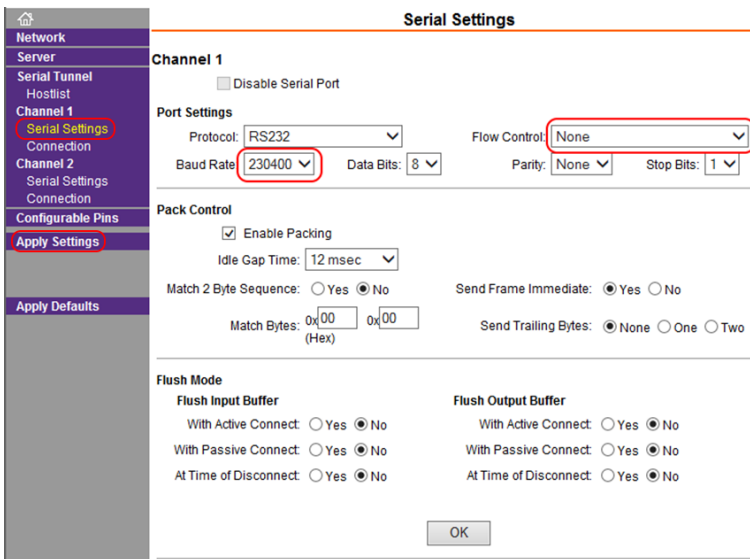
Do not select or accept a Local Port number 23
Local Port number 23 is reserved for TelNet

Remote Port: 0

Select: **Apply Settings**

Perform a new search after the settings have been completed.

Select: Serial Settings:




Baud Rate on Channel 1: 230400

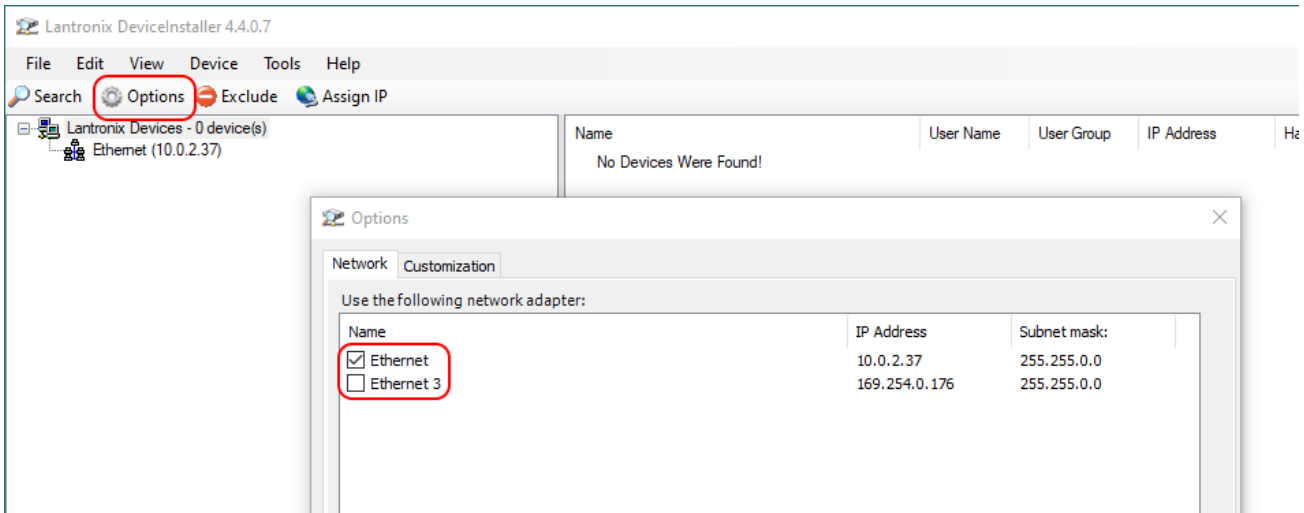
Flow Control: None


Click on: **Apply Settings**

Perform a new search after the settings have been applied to ensure they have been saved.

11.1.1.1 If No Lantronix Devices are Found

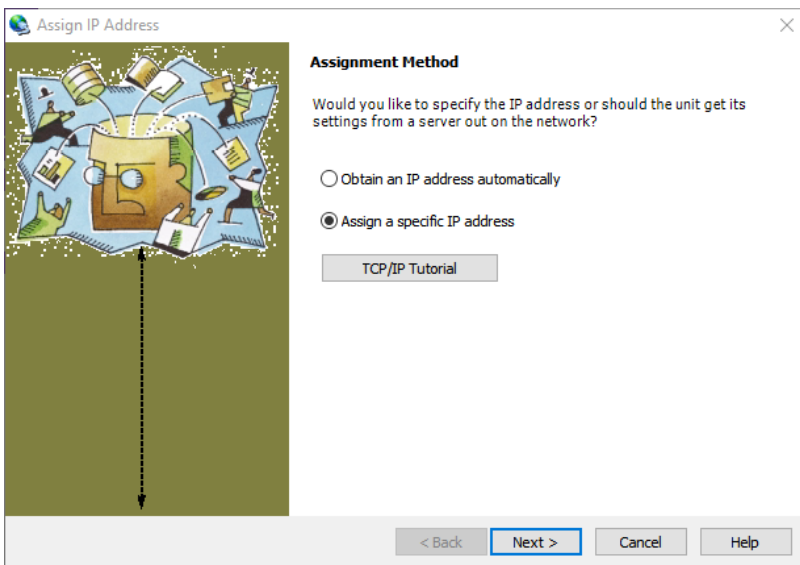
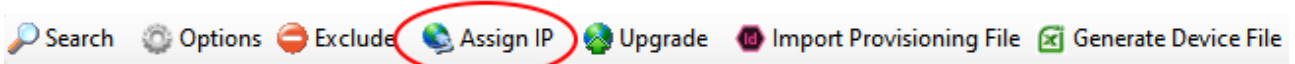
If no Lantronix devices are found, this can happen if you are using an Ethernet to Serial converter, click on the Options button:  **Options** and check that you have the correct network adaptor selected.



Once a new network adaptor has been selected, click on the Search button:  **Search** to locate and interface to the uvSVXe.

11.1.1.2 Fixed IP

To set a fixed IP address for the unit follow the wizard in the Lantronix App



12 Care & Maintenance

The Bathy2 are remarkably robust, being primarily constructed of titanium. The only maintenance required, other than periodic recalibration as necessary or recommended at maximum of 2 years, is to keep the sensor as clean as possible. The instrument should be rinsed with freshwater when recovered and any debris or growth gently removed.

Do not attempt to remove the acetal Lock Screw Cap from the Pressure Module. If debris is caught under the cover attempt to remove it under slowly flowing water, use no tools. If this fails, contact Valeport for further advice. If the sensor diaphragm is damaged in any way, it will have to be replaced.

Any damage to this diaphragm will render the Pressure Module warranty invalid.

The Pressure Module should be swapped when the unit is a) powered off and b) fully dry.

The instrument should be stored in its box when not in use. It is not necessary to remove the Interchangeable Pressure Sensor Module during storage.

12.1 Calibration

The Bathy2 Interchangeable Pressure Modules can be returned to Valeport or one of its approved laboratories for recalibration.

Pressure sensors should be calibrated biennially.

13 Updating the Bathy2

On occasion there will be updates to the Bathy2 firmware.

13.1 Updating the Intelligent Interface Board Firmware



The firmware will be available on <https://valeport.download>.

Select Bathy2 from the dropdown list to be presented with software and firmware relevant to Bathy2.

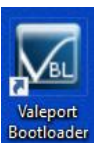
Windows Software

| Product | Description | Suitable for: | Version/Size | Get |
|---------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------|------|
| Bathy2 Interpreter | <p>Software application to interpret incoming Bathy 2 data and convert it to various Output Formats. + Valeport + Valeport (old) + Tritech + SeaKing + Digiquartz + UK90_STD + Winson_Proc + Winson_Proc (subsea)</p> <p>What's new?</p> <ul style="list-style-type: none"> • Complete rewrite of Interpreter to Net 8.0 • Instrument communication and interruption indicators added • Added the ability to add and remove multiple serial and TC/IP Outputs • Added the ability to save a workspace • Added the ability to log a profile similar to original Midas BathyPack and can save a *.btd file. • Added calculated sound velocity using either Chen & Millero or GSW TEOS-10 equations. • Checks if instrument is set to Valeport string format to ensure string data conversions are correct when data comes in interpreter. • Corrected depth part of winson proc string it now correctly reports depth rather than total depth (combining the pressure depth and altimeter). • Changed the way atmospheric sensor input is applied and allows quicker update. • Language pack updated with new phrases. <p>Please review the application notes found by clicking here</p> | + Bathy2 | 2.0.2.2 16.07 MB | |
| Valeport Configure | <p>Valeport Configure is a generic program developed to operate with a number of Valeport Instruments; a specific module being loaded for each The list of instruments compatible with Configure will increase over time.</p> <p>Some important points to note about the download: Presently only available for windows 10 onwards.</p> <p>Functionality: Instrument set up and set to work.</p> <p>What's new?</p> <p>Updates to offline resource files. Users will be prompted to download offline resources if Configure is to be used offline.</p> <p>If you are installing on a PC with no internet, click here for instrument resource files.</p> | + Bathy2 + miniIPS2 + uvSVX + Hyperion + Type 804 + Type 804 ExP + Type 810 + Type 812 | 2.2.1.1 29.46 MB | |
| Valeport Bootloader | <p>A software tool to update your instrument to the latest firmware.</p> <p>What's new?</p> <p>Minor change to read the boot message to determine the micro variants. Some bug fixes</p> | + All SWIFT variants + All Hyperion variants + miniIPS2 + uvSVP + uvSVX + Type 804 + EnviroLog + Bathy2 + Type 810 + Type 812 + pH | 3.0.7.4 7.46 MB | |

Firmware

| Product | Description | Suitable for: | Version/Size | Get |
|---------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Bathy2 Intelligent Interface Board Firmware | <p>The latest firmware version for your instrument.</p> <p>If you have any doubts as to the compatibility of this firmware with your instrument please contact Valeport before attempting to upgrade.</p> <p>This firmware should be loaded into your instrument using the Valeport Bootloader software tool; available to download from this page.</p> <p>What's new?</p> <p>The output units of the direct bathy2 Aux (INS) output has been updated allowing dbar or PSI in either raw and tare applied outputs.</p> | + Bathy2 | B9 139.46 KB |   |

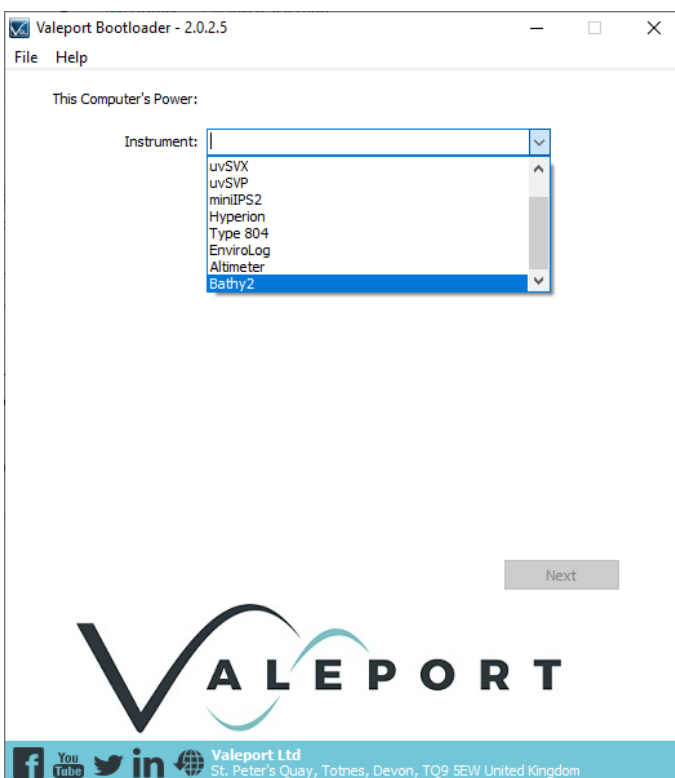
Download and install Valeport Bootloader – a shortcut should be added to your desktop:



Download and save the Firmware .zip file - **do not 'unzip' it.**

13.2 Valeport Bootloader App

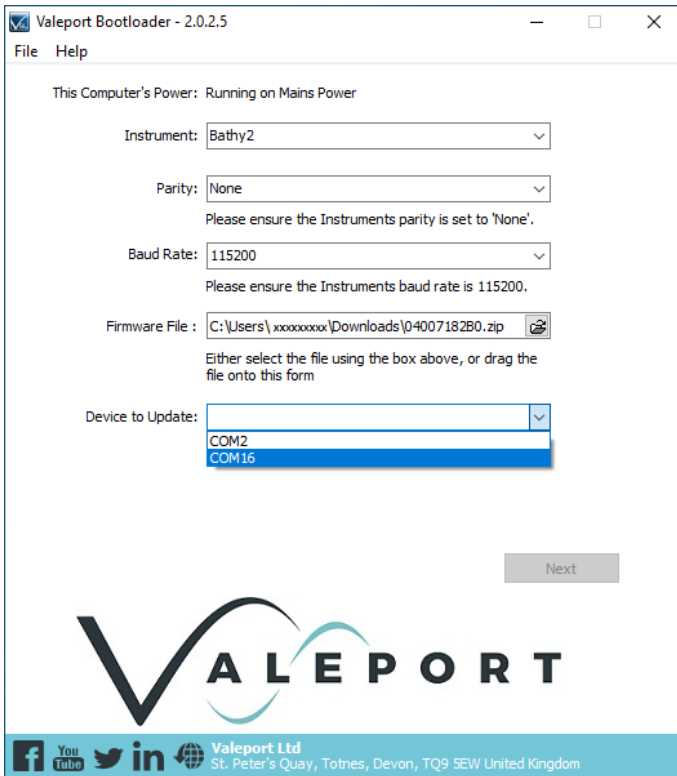
Run the software and select Bathy2 from the drop-down list:



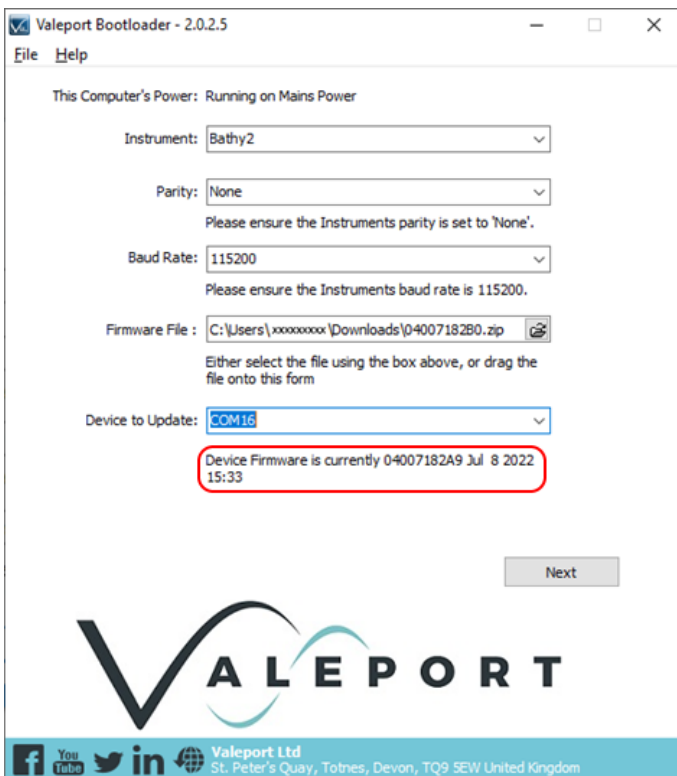
In the Firmware File: field use the dialogue button to select the zip file you downloaded earlier or simply drag and drop it on the window.

In the Device to Update: field use the drop-down list to select the COM port the instrument is interfaced to

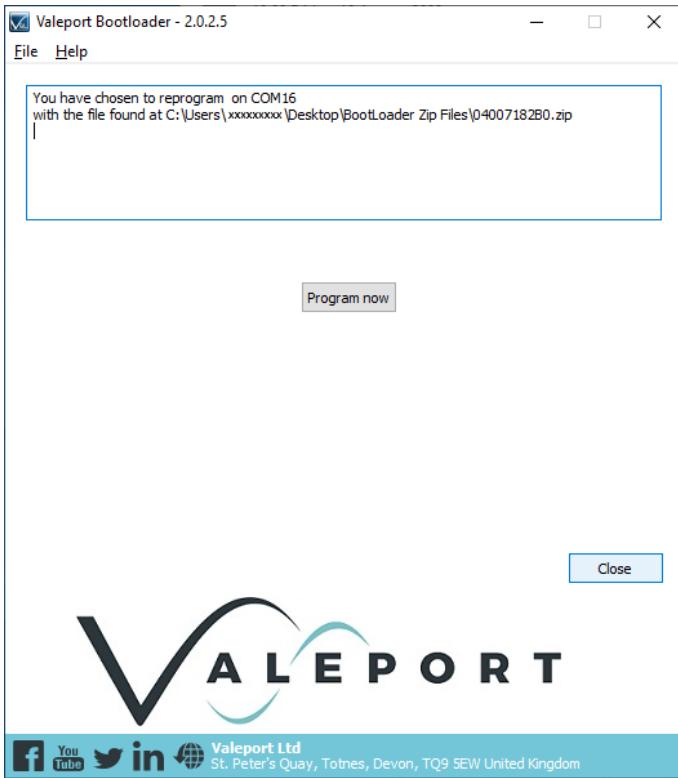
Section 13 | Updating the Bathy2



Once the instrument has been recognised it will show the installed firmware:

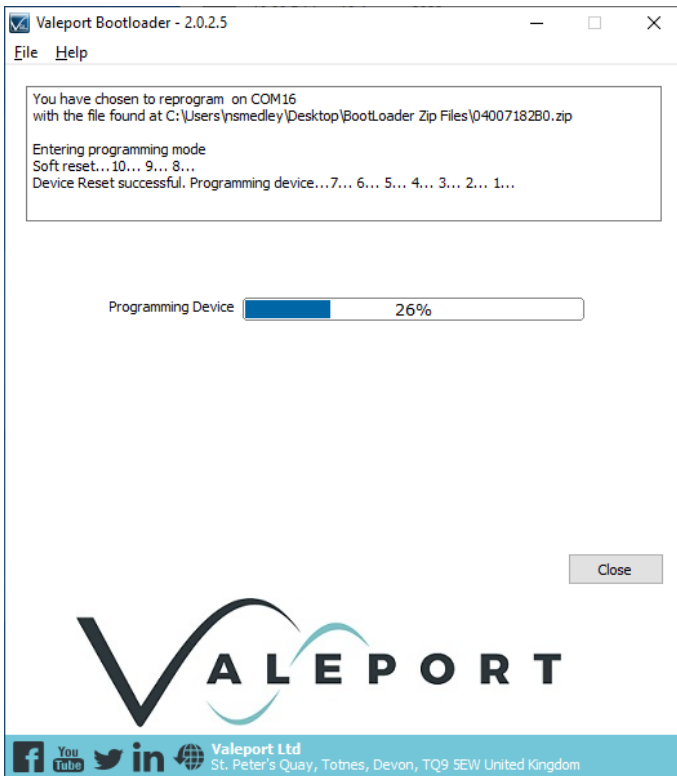


Click 

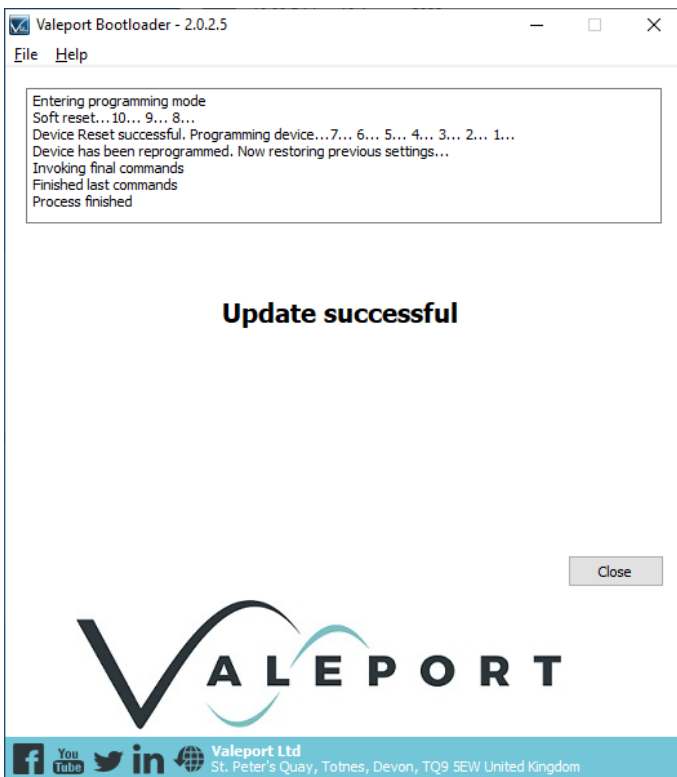


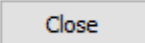
Click

You can monitor progress as the new firmware is bootloaded:



You will be informed when the process is complete



Click  to continue.

14 Ordering and Part Numbers

| Part No. | Description |
|-------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0608010 | <p>Bathy2 Base Unit - Titanium housing Fitted with: Fast Response PRT temperature sensor Pressure compensated conductivity cell 50mm path length sound velocity sensor Includes interfaces for Valeport VA500 altimeter External pressure sensor e.g. Digiquartz Auxiliary pressure output e.g. INS Supplied with Valeport Configure software 4m interface lead operating manual and system transit case.</p> <div style="border: 1px solid red; padding: 5px; text-align: center;">Altimeter and PTSA Pressure Transducer are not included</div> |
| 0608010-XXX | <p>Bathy2 Base System - Titanium housing Fitted with: 0.01% piezo-resistive, interchangeable pressure sensor (XXXBar) where XXX = 10, 20, 30, 50, 100, 200, 300, 400 or 600 Bar Fast Response PRT temperature sensor Pressure compensated conductivity cell 50mm path length sound velocity sensor Includes interfaces for Valeport VA500 altimeter External pressure sensor e.g. Digiquartz Auxiliary pressure output e.g. INS Supplied with Valeport Configure software 4m interface lead operating manual and system transit case.</p> <div style="border: 1px solid red; padding: 5px; text-align: center;">Altimeter is not included</div> |
| 0608011-XXX | <p>Bathy2 ETHERNET System - Titanium housing Fitted with: 0.01% piezo-resistive, interchangeable pressure sensor (XXXBar) where XXX = 10, 20, 30, 50, 100, 200, 300, 400 or 600 Bar Fast Response PRT temperature sensor Pressure compensated conductivity cell 50mm path length sound velocity sensor Includes interfaces for Valeport VA500 altimeter External pressure sensor e.g. Digiquartz Auxiliary pressure output e.g. INS Supplied with Valeport Configure software 4m interface lead operating manual and system transit case.</p> <div style="border: 1px solid red; padding: 5px; text-align: center;">Altimeter is not included</div> |
| PTSAXX | <p>Interchangeable Pressure Sensor Module (XXX Bar) 10, 20, 30, 50, 100, 200, 300, 400 or 600 Bar</p> |
| 0760089 | <p>Pressure Module removal tool</p> |

15 Declarations of Conformity

Any changes or modifications to the product or accessories supplied, that are not authorised by Valeport Ltd, could void the CE compliance of the product and negate your authority to operate it. This product has demonstrated CE compliance under conditions that include the use of shielded cables. It is important that you use shielded cables compliant with the product’s conformance, to protect from potential damage and reduce the possibility of interference to other electronic devices

15.1 EU Declaration of Conformity – CE Mark

15.1.1 Bathy2

EU Declaration of Conformity

| | |
|-------------------------------|-----------------------------------------|
| Manufacturer: | Valeport Ltd |
| Address: | St Peter’s Quay, Totnes, Devon, TQ9 5EW |
| Certification marking: | CE |
| Product Description: | Bathy2 |

We the manufacturer declare that the product **Bathy2**, is in conformity with the following EU Directives and harmonised standard(s):

| EMC Directive 2014/30/EU | Standards |
|--------------------------|----------------------------------|
| EMC (Article 3.1b) | BS EN 61326-1:2013 (Basic Level) |

| RoHS Directive 2015/863/EU | Standards |
|----------------------------|----------------------|
| Prevention (Article 4.1) | BS EN IEC 63000:2018 |

| | |
|------------------------|--------------------------|
| Name: | D.Lakin |
| Position: | Development Engineer |
| Place of issue: | Valeport Ltd, Totnes, UK |
| Date of issue: | 08 November 2021 |
| Signature: | |

Valeport Limited
St. Peters Quay, Totnes
Devon TQ9 5EW UK

+44 (0) 1803 869292
sales@valeport.co.uk
www.valeport.co.uk

VAT No: GB 165 8753 67
Registered in England No: 1950444

15.1.2 Interchangeable Pressure Module



EU Declaration of Conformity

| | |
|-------------------------------|-----------------------------------------------|
| Manufacturer: | Valeport Ltd |
| Address: | St Peter's Quay, Totnes, Devon, TQ9 5EW |
| Certification marking: | CE |
| Product Description: | Interchangeable Pressure Sensor Module (IPSM) |

We the manufacturer declare that the product **Interchangeable Pressure Sensor Module (IPSM)** is in conformity with the following EU Directives and harmonised standard(s):

| EMC Directive 2014/30/EU | Standards |
|--------------------------|----------------------------------|
| EMC (Article 3.1b) | BS EN 61326-1:2013 (Basic Level) |

| RoHS Directive 2015/863/EU | Standards |
|----------------------------|----------------------|
| Prevention (Article 4.1) | BS EN IEC 63000:2018 |

| | |
|------------------------|--------------------------|
| Name: | James Bishop |
| Position: | Design Engineer |
| Place of issue: | Valeport Ltd, Totnes, UK |
| Date of issue: | 27 February 2020 |
| Signature: | |

Valeport Limited
St. Peter's Quay, Totnes,
Devon TQ9 5EW UK


+44 (0) 1803 869292
sales@valeport.co.uk
www.valeport.co.uk

VAT No: GB 955 8755 87
Registered in England No: 1950444



15.2 UK Declaration of Conformity – UKCA Mark

15.2.1 Bathy2




UK Declaration of Conformity

| | |
|-------------------------------|-----------------------------------------|
| Manufacturer: | Valeport Ltd |
| Address: | St Peter's Quay, Totnes, Devon, TQ9 5EW |
| Certification marking: | UKCA |
| Product Description: | Bathy2 |

We the manufacturer declare that the product **Bathy2** is in conformity with the following UK Statutory requirements and designated standard(s):

| Electromagnetic Compatibility Regulations 2016 | Standards |
|------------------------------------------------|------------------------------------------------------|
| EMC (SI 2016 No.1091) | BS EN 60945:2002 BS EN 61326-1:2013 (Basic Level) |









| ROHS Regulations 2012 | Standards |
|-----------------------|----------------------|
| SI 2012 No. 3032 | BS EN IEC 63000:2018 |

| | |
|------------------------|-------------------------------------------------------------------------------------|
| Name: | D.Lakin |
| Position: | Development Engineer |
| Place of issue: | Valeport Ltd, Totnes, UK |
| Date of issue: | 08 November 2021 |
| Signature: |  |

Valeport Limited
St. Peters Quay, Totnes
Devon TQ9 5EW UK

+44 (0) 1803 869292
sales@valeport.co.uk
www.valeport.co.uk

VAT No. GB 165 8753 67
Registered in England No. 1950444

F4N
Fit For Nuclear

15.2.2 Interchangeable Pressure Module



UK Declaration of Conformity

| | |
|-------------------------------|-----------------------------------------------|
| Manufacturer: | Valeport Ltd |
| Address: | St Peter's Quay, Totnes, Devon, TQ9 5EW |
| Certification marking: | UKCA |
| Product Description: | Interchangeable Pressure Sensor Module (IPSM) |

We the manufacturer declare that the product **Interchangeable Pressure Sensor Module (IPSM)** is in conformity with the following UK Statutory requirements and designated standard(s):

| Electromagnetic Compatibility Regulations 2016 | Standards |
|-------------------------------------------------------|----------------------------------|
| EMC (SI 2016 No.1091) | BS EN 61326-1:2013 (Basic Level) |

| ROHS Regulations 2012 | Standards |
|------------------------------|----------------------|
| SI 2012 No. 3032 | BS EN IEC 63000:2018 |

| | |
|------------------------|--------------------------|
| Name: | Surya Dinesh |
| Position: | Product Support Manager |
| Place of issue: | Valeport Ltd, Totnes, UK |
| Date of issue: | 16 June 2021 |
| Signature: | |

Valeport Limited
St. Peter's Quay, Totnes,
Devon TQ9 5EW UK

+44 (0) 1803 869292
sales@valeport.co.uk
www.valeport.co.uk

VAT No. GB 365 8715 87
Registered in England No 1950444

