

# PA Altimeter

## Operator & Installation Manual

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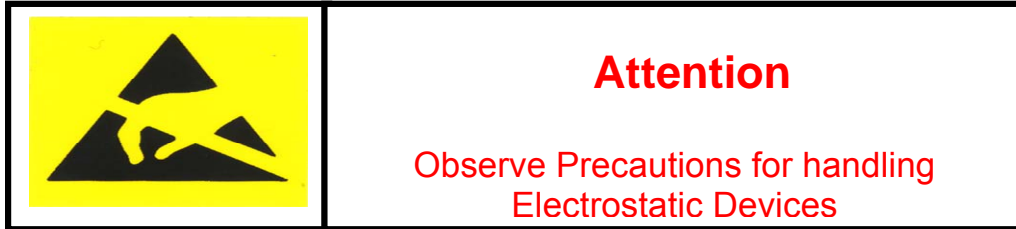
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## Handling of Electrostatic-Sensitive Devices



### Caution

## Handling of Electrostatic-Sensitive Devices

**Certain semiconductor devices used in the equipment are liable to damage due to static voltages.**

Observe the following precautions when handling these devices in their unterminated state, or sub-units containing these devices:

- Persons removing sub-units from any equipment using electrostatic sensitive devices must be earthed by a wrist strap via a 1M $\Omega$  resistor to a suitable discharge reference point within the equipment.
- Soldering irons used during any repairs must be low voltage types with earthed tips and isolated from the Mains voltage by a double insulated transformer. Care should be taken soldering any point that may have a charge stored.
- Outer clothing worn must be unable to generate static charges.
- Printed Circuit Boards (PCBs) fitted with electrostatic sensitive devices must be stored and transported in appropriate anti-static bags/containers.

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## WARRANTY STATEMENT

**Tritech International Limited** herein after referred to as **TIL**

TIL warrants that at the time of shipment all products shall be free from defects in material and workmanship and suitable for the purpose specified in the product literature.

The unit/system warranty commences immediately from the date of customer acceptance and runs for a period of 365 days. Customer acceptance will always be deemed to have occurred within 72 hours of delivery.

**Note:** Any customer acceptance testing (if applicable) must be performed at either TIL premises or at one of their approved distributors unless mutually agreed in writing prior to despatch.

### **Conditions:**

**These include, but are not limited to, the following:**

- 1 The warranty is only deemed to be valid if the equipment was sold through TIL or one of its approved distributors.
- 2 The equipment must have been installed and commissioned in strict accordance with approved technical standards and specifications and for the purpose that the system was designed.
- 3 The warranty is not transferable, except or as applies to Purchaser first then to client.
- 4 TIL must be notified immediately (in writing) of any suspected defect and if advised by TIL, the equipment subject to the defect shall be returned by the customer to TIL, via a suitable mode of transportation and shall be freight paid.
- 5 The warranty does not apply to defects that have been caused by failure to follow the recommended installation or maintenance procedures. Or defects resulting from normal wear & tear, incorrect operation, fire, water ingress, lightning damage or fluctuations in vehicles supply voltages, or from any other circumstances that may arise after delivery that is out with the control of TIL.  
(**Note:** The warranty does not apply in the event where a defect has been caused by isolation incompatibilities.)
- 6 The warranty does not cover the transportation of personnel and per diem allowances relating to any repair or replacement.
- 7 The warranty does not cover any direct, indirect, punitive, special consequential damages or any damages whatsoever arising out of or connected with misuse of this product.
- 8 Any equipment or parts returned under warranty provisions will be returned to the customer freight prepaid by TIL
- 9 The warranty shall become invalid if the customer attempts to repair or modify the equipment without appropriate written authority being first received from TIL.
- 10 TIL retains the sole right to accept or reject any warranty claim.
- 11 Each product is carefully examined and checked before it is shipped. It should therefore be visually and operationally checked as soon as it is received. If it is damaged in anyway, a claim should be filed with the courier and TIL notified of the damage.

**Note: TIL reserve the right to change specifications at any time without notice and without any obligation to incorporate new features in instruments previously sold.**

**Note: If the instrument is not covered by warranty, or if it is determined that the fault is caused by misuse, repair will be billed to the customer, and an estimate submitted for customer approval before the commencement of repairs.**

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## Safety Statements



**Caution!**

*Throughout the manual certain safety related comments and requirements will be highlighted to the operator by indications identified by the adjacent symbol and text.*



**Danger!**

*Throughout the manual certain safety or operational related comments and requirements that could lead to injury or loss of life will be highlighted by the adjacent symbol and text.*

## Technical Support

Contact your local agent or Tritech International Ltd

	<b>Mail</b>	<b><i>Tritech International Ltd.</i></b> Peregrine Road, Westhill Business Park, Westhill, Aberdeen, AB32 6JL, UK
		<b>Telephone</b> ++44 (0)1224 744111 <b>Fax</b> ++44 (0)1224 741771
	<b>Email</b>	support@tritech.co.uk
	<b>Web</b>	www.tritech.co.uk

An out-of-hours emergency number is available by calling the above telephone number

If you have cause to use our Technical Support service, please ensure that you have the following details at hand **prior** to calling:

- System Serial Number (if applicable)
- Fault Description
- Any remedial action implemented

Due to the expansion of equipment capabilities and the fact that new sub-modules are continually being introduced, this manual cannot detail every aspect of the operation.

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**INTRODUCTION**



The PA200 & PA500 Precision Miniature Altimeters can operate under their own control sending out data to a display unit or ROV control system or under the control of a surface computer.

Communications to and from the subsea elements are conducted over an RS-485 or RS-232 multiplexed half duplex bi-directional data link at 9600 Baud, suitable for installation on most remotely-operated underwater systems.

It is also possible to obtain a 0-10VDC (or 0-5vDC) analogue signal from the altimeter.

The altimeters are available in a range of frequencies, and beam angles. Standard Transducer Options are as follows:-

PA200/20-S	200kHz	20	Conical Beam SS 316
PA500/6-S	500kHz	6°	Conical Beam SS 316
PA200/10-AL	200kHz	10°	Included Conical Beam

## ALTIMETER DESCRIPTION

### STANDARD 4000M DEPTH UNIT

The PA200 / PA500 is a sonar ranging device which mounted vertically gives depth above the sea bed or in any other attitude provides a subsea distance measuring device. The altimeter can be configured to operate on its own or under control from an external unit and has a 6 pin connector allowing both analogue output and serial communications to be available simultaneously.

The altimeter incorporates a fixed crystal transducer which is matched to the range and resolution required. The altimeter data is transmitted via an underwater connector to a processor or data display unit, in digital or analogue signal form.

### OPTIONAL 6800M DEPTH UNIT

PA200/500 altimeters can be supplied with a variety of different housings and depth ratings.

These include stainless steel (6800m), plastic (700m) and aluminium (4000m) units with straight or right angle transducers. In addition various connector options are available. The particular configuration of your delivered unit is described in the appropriate appendix at the rear of this manual.

### INTERNAL SWITCH SETTINGS

The PA altimeters have a number of internal switches. These may be used to set the altimeters to different configurations.



**Caution!**

***Extreme care should be taken when handling an open unit or when changing switch settings. Inappropriate settings may result in damage to the unit.***

Altimeter configuration is realized by a combination of switch settings and hardware changes. Therefore for available switch settings relevant to a specific unit contact Technical Support at Tritech with the unit serial number.

## Altimeter Installation



**Caution!**

***Before applying power to the altimeter, ensure that power and signal lines are correctly connected according to the diagram in the configuration information. Incorrect connections may damage the unit.***

### Mounting

The altimeter should be securely mounted by insulated clamps in a position that gives an unimpeded path for the sounder beam, and as far from frame structures as possible. If being used as a depth sounder, it should be mounted as vertically as possible.

### Operation

If supplied with the Analogue Output and Automatic Run on Power Up options, the altimeter will start ranging as soon as power is applied. The Analogue (and / or Serial Data) output will then reflect the range of the nearest echo. Otherwise the unit will need an interrogate signal as described in the configuration information.



## ALTIMETER MAINTENANCE

The PA200 and PA500 Precision Altimeter consist of Transducer and Connector End-caps that connect to a Body tube using a screw thread, with O-ring seals. Inside are contained four PCB's. The standard unit has a 6-way underwater connector fastened 4 socket cap screws, the connector is sealed using an O-ring. The optional 4 pin connector is fitted to the end-cap using a screw thread and O ring.



**Caution!**

**Maintenance of water integrity is the responsibility of the user. Internal damage caused by water ingress is not covered by product warranty unless the cause can clearly be identified as a manufacturing defect.**

### Altimeter Spares

When ordering spares please specify the units frequency and beam angle, these are engraved on the transducer end-cap, and also recorded on the configuration sheet in the front of the manual along with other details of the unit such as EPROM version and range and output specification.

## Disassembly and Assembly of the Altimeter

### Service tools

Clean absorbent wipes  
Lubricant A ( Silicon grease MS-33 )

### Preparation

Rinse the altimeter unit and connector in freshwater, and dry with absorbent wipes

### Removal

Next grasp the altimeter connector endcap firmly in one hand, and the body tube in the other. Gently unscrew the body tube away from the connector endcap. The electronics block will then slide out of the housing, attached to the connector endcap. The transducer may be unscrewed from the opposite end of the body tube in the same way.

### Replacement

Clean all parts and check they are undamaged. Carefully inspect O-rings for damage and replace if necessary. O-rings, O-ring grooves and mating surfaces should be lightly greased before reassembly. Before replacing, ensure that the earth loop on the electronics block is secure and sprung so that it will contact the inside face of the body tube when it is fitted.

## **APPENDIX 1      MECHANICAL SPECIFICATION**

## **APPENDIX 2 PA ALTIMETER CONNECTOR CONFIGURATION**

**APPENDIX 3 NOT USED**

## **APPENDIX 4    ALTIMETER CONFIGURATION SHEET**

## **APPENDIX 5    ALTIMETER BUILD RECORD/PRESSURE CERTIFICATE**