

Aqua-C

TPS Pty Ltd

ABN 30 009 773 371

Phone: (07) 32058027

International: 61 7 32058027

Email: sales@tps.com.au

Web: www.tps.com.au





Congratulations !

You have purchased the latest in Handheld Conductivity-TDS-Salinity-Temperature instrumentation. We trust that your new **Aqua-C** will give you many years of reliable service.

The **Aqua-C** is a breeze to operate. This manual has been designed to help you get started, and also contains some handy application tips. If at any stage you require assistance, please contact either your local TPS representative or the TPS factory in Brisbane.

The manual is divided into the following sections:

1. Table of Contents

Each major section of the handbook is clearly listed. Sub-sections have also been included to enable you to find the information you need at a glance.

2. Introduction

The introduction has a diagram and explanation of the display and controls of the **Aqua-C**. It also contains a full listing of all of the items that you should have received with your **Aqua-C**. Please take the time to read this section, as it explains some of items that are mentioned in subsequent sections.

3. Main Section

The main section of the handbook provides complete details of the **Aqua-C**, including operating modes, calibration, troubleshooting, specifications, and warranty terms.

4. Appendices

Appendices containing background information and application notes are provided at the back of this manual.



Contents

1. Introduction	5
1.1 Aqua-C Display and Controls	5
1.2 Unpacking Information	8
1.3 Specifications	9
2. Operating Modes	12
2.1 Mode Selection	12
2.2 Setting TDS Factor	12
2.3 Display Combination Selection	13
3. Conductivity (TDS/Salinity) Calibration	15
3.1 Calibration	15
3.2 Calibration Notes	18
3.3 Calibration Messages	18
4. Temperature Calibration	19
4.1 Calibration Notes	20
4.2 Calibration Messages	21
5. Selecting k=10 or k=0.1 sensor	22
6. Battery	23
6.1 Battery Saver Function	23
6.2 Changing the Battery	24
7. Initialising the Aqua-C	25
8. Troubleshooting	26
8.1 General Error Messages	26
8.2 Conductivity and TDS Troubleshooting	27
8.3 Temperature Troubleshooting	29
9. Appendices	30
9.1 Care, Cleaning and Maintenance of Conductivity Sensors	30
9.2 Replatinising Conductivity Sensors	32
9.3 Instrument software version number.	33



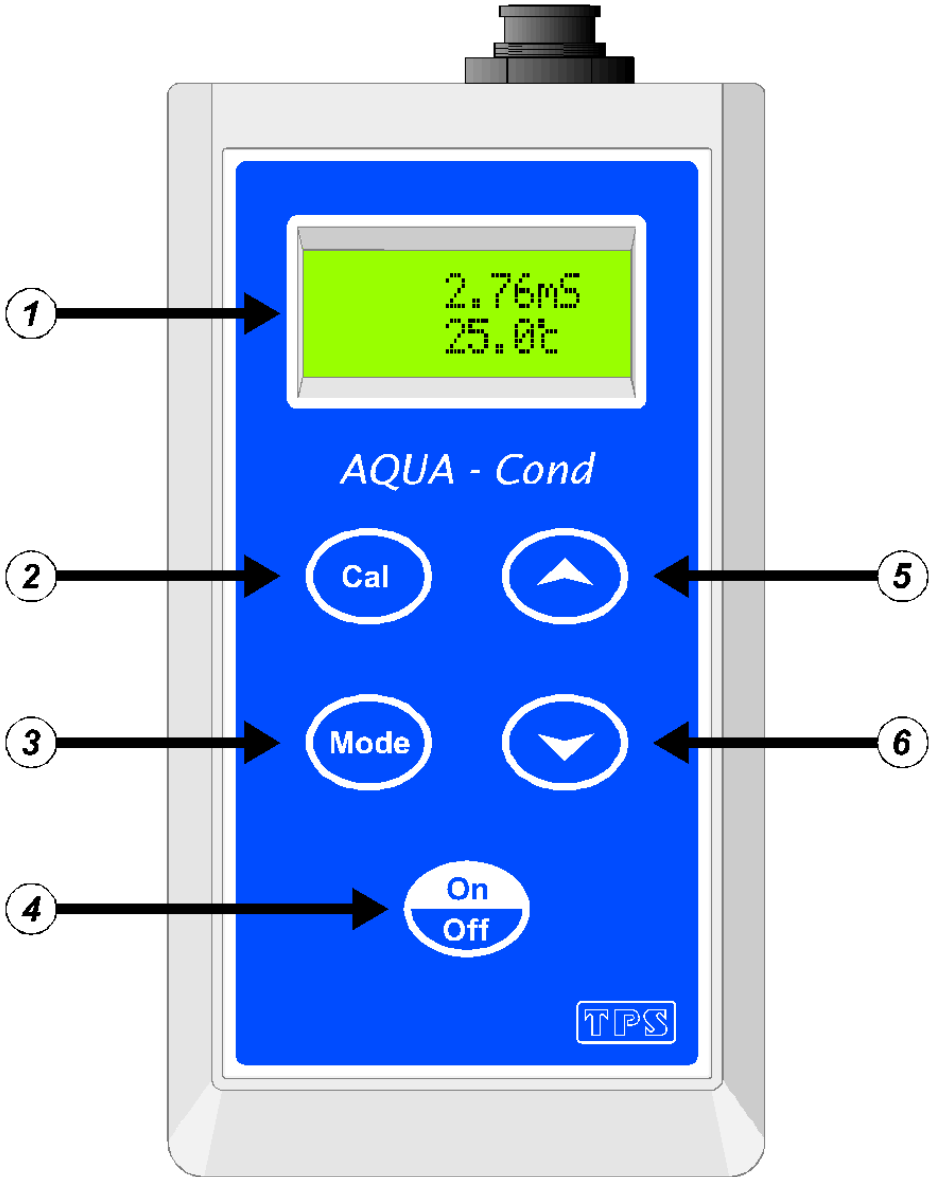
10. Warranty

34



1. Introduction

1.1 Aqua-C Display and Controls





1 Display

24 character alpha-numeric display. Shows Conductivity/TDS/Salinity and Temperature simultaneously. A “Large Digit” mode nearly doubles the size of the digits (section 2). User-friendly prompts and error messages are also provided.

2

Used to calibrate Conductivity/TDS/Salinity and Temperature. See sections 3 and 4.

Used to select k=10 or k=0.1 sensor at turn-on. See section 5.

3

Switches between Conductivity or TDS or Salinity, and Temperature. See section 2.

4

Switches the **Aqua-C** on and off.

Hold this key for 3 seconds to invoke Battery Saver mode. See section 6.

5 and 6

These keys toggle the **Aqua-C** between Large Display mode and Dual Display mode. See section 2.

NOTE: The digits in Large Display mode are made by combine the two rows of the display. This results in a small gap approximately half way up the digits.



1.2 Unpacking Information

Before using your new **Aqua-C**, please check that the following accessories have been included:

Part No

Aqua-C Conductivity-TDS-Salinity-Temperature Instrument

122162/1

122162/3

122162/5

2. Conductivity/ATC/Temperature Sensor: k=1 1, 3 or 5m cable

(see cable label for part No) k=10 1, 3 or 5m cable

k=0.1 1, 3 or 5m cable

3. Conductivity Standard, 200mL: 2.76 mS/cm 122306

or 58.0 mS/cm 122315

or 150.0 uS/cm 122320

4. Manual

*Options that may have been ordered with your **Aqua-C**:*

1. Extended cable 130040

2. Carry Case 130057



1.3 Specifications

	Ranges	Resolution	Accuracy
Conductivity	k=0.1 Sensor 0 to 2.000 $\mu\text{S/cm}$	0.001 $\mu\text{S/cm}$	$\pm 0.5\%$ of full scale of selected range at 25.0 $^{\circ}\text{C}$
	0 to 20.00 $\mu\text{S/cm}$	0.01 $\mu\text{S/cm}$	
	0 to 200.0 $\mu\text{S/cm}$	0.1 $\mu\text{S/cm}$	
	0 to 2000. $\mu\text{S/cm}$	1 $\mu\text{S/cm}$	
	k=1 Sensor 0 to 20.00 $\mu\text{S/cm}$	0.01 $\mu\text{S/cm}$	
	0 to 200.0 $\mu\text{S/cm}$	0.1 $\mu\text{S/cm}$	
	0 to 2000. $\mu\text{S/cm}$	1 $\mu\text{S/cm}$	
	0 to 20.00 mS/cm	0.01 mS/cm	
	k=10 Sensor 0 to 200.0 $\mu\text{S/cm}$	0.1 $\mu\text{S/cm}$	
	0 to 2000 $\mu\text{S/cm}$	1 $\mu\text{S/cm}$	
	0 to 20.00 mS/cm	0.01 mS/cm	
	0 to 200.0 mS/cm	0.1 mS/cm	
TDS	k=0.1 Sensor 0 to 1.000 ppM	0.001 ppM	$\pm 0.5\%$ of full scale of selected range at 25.0 $^{\circ}\text{C}$
	0 to 100.0 ppM	0.01 ppM	
	0 to 1000 ppM	1 ppM	
	0 to 10.00 ppK	0.01 ppK	
	k=1 Sensor 0 to 10.00 ppM	0.01 ppM	
	0 to 100.0 ppM	0.1 ppM	
	0 to 1000. ppM	1 ppM	
	0 to 10.00 ppK	0.01 ppK	
	k=10 Sensor 0 to 100.0 ppM	0.1 ppM	
	0 to 1000. ppM	1 ppM	
	0 to 10.00 ppK	0.01 ppK	
	0 to 100.0 ppK	0.1 ppK	
Salinity	k=0.1 Sensor 0 to 0.10 %	0.01 %	$\pm 0.5\%$ of full scale of selected range at 25.0 $^{\circ}\text{C}$
	0 to 1.0 PSU	0.1 PSU	
	k=1.0 Sensor 0 to 1.19 %		
	0 to 11.9 PSU		
	k=10 Sensor 0 to 8.00 %		
	0 to 80.0 PSU		



Temperature	-10.0 to 120.0 °C (Sensor limit 60 °C)	0.1 °C	±0.2 °C
--------------------	---	--------	---------



Temperature Compensation Automatic, -5 to 70 °C

Conductivity Sensor Span Range 75 to 133 %

Temperature Sensor Offset Range -10.0°C to +10.0°C

Auto Standard Recognition Cond : 150 µS/cm, 1413 µS/cm, 2.76 mS/cm, 12.88 mS/cm, 58.0 mS/cm

Display 24 Character alphanumeric LCD, with full text prompts and error messages.

Power 9V Alkaline Battery for 70 hours operation.

Battery Saver On : Auto switch-off after 5 minutes

Off : Continuous use

Dimensions 165 x 85 x 35 mm

Mass Instrument only : Approx 280g

Full Kit : Approx 2kg

Environment Temperature : 0 to 45 °C

Humidity : 0 to 95% R.H.



2. Operating Modes

2.1 Mode Selection

To select Conductivity, TDS or Salinity modes...

1. Press the **Mode** key until the **Aqua-C** is the mode selection menu. For example...



Mode: Cond ↑↓

2. Press **↶** or **↷** to select the required from the following choices...

- Conductivity
- TDS
- Salinity

3. Press **Mode** when the required display mode has been selected. If TDS mode has been selected the user can now enter the TDS Factor.

2.2 Setting TDS Factor

To set the TDS Factor...

1. Press the **Mode** key until the **Aqua-C** is the mode selection menu. Select the TDS Mode.
2. Press the **Mode** key and the currently selected TDS Factor is displayed. For example...



TDS Factor ↑.65↓

Press the **↶** key to increase the Factor.

Press the **↷** key to decrease the Factor.



Press the **Mode** key when the desired value is displayed.
 The new TDS Factor will be now displayed.
 The TDS Factor can be set from 0.40 to 1.00.
 The TDS Factor will be reset to 0.65 when the meter is initialized.

2.3 Display Combination Selection

Press the **Mode** key to select the desired combination of displayed parameters.
 The sequence is shown in the following table...

Conductivity or TDS or Salinity and Temperature Mode	2 . 76mS 25 . 0°C
Conductivity or TDS or Salinity data is shown on the top line and Temperature data is shown on the bottom line. Press ▲ or ▼ to toggle between dual readout or large digit readout.	

↓ **Mode**

Temperature Mode	25 . 0°C
Temperature data only is shown on the top line. Press ▲ or ▼ to toggle between regular readout or large digit readout.	

↓ **Mode**

Mode Selection	Mode : Cond ↑↓
See Mode selection Section 2.1.	



↓ Mode
Back to Conductivity or TDS or Salinity plus pH and Temperature mode

Note: The decimal point is replaced by a "°" if a Conductivity or Temperature calibration has failed (see sections 3 and 4), if the unit is initialised (see section 7), or if the unit has lost its factory calibration (see section 8.1).



3. Conductivity (TDS/Salinity) Calibration

To achieve accurate Conductivity/TDS/Salinity results, the **Aqua-C** requires calibration to an allowable Conductivity standard. The TDS and Salinity values are derived from the Conductivity reading and do not require a separate calibration. The conductivity of a solution varies with temperature. The **Aqua-C** uses Automatic Temperature Compensation (ATC) referenced to the fixed temperature of 25°C.


A “*” in place of the decimal point indicates that the Conductivity or TDS or Salinity readout is not calibrated, or a past calibration has failed. The “*” will be removed once a Conductivity calibration has been successfully performed in Conductivity standard.



3.1 Calibration

- 1.** Switch the **Aqua-C** on.
- 2.** Select a display mode showing Conductivity or TDS or Salinity readout (section 2.1).
- 3.** Plug the Conductivity sensor into the sensor socket. If a k=10 or k=0.1 sensor is being used, ensure that it has been correctly selected (see section 5).
- 4.** Rinse the Conductivity sensor in distilled water. Shake off as much water as possible. Blot the outside of the sensor dry. **DO NOT BLOT THE SENSOR WIRES.**

5. Zero Calibration

Let the sensor dry in air.

When the reading has stabilised at or near zero, press the  key.

The **Aqua-C** will prompt the user to select the parameter if a combination display is shown. Use the  or  keys to select Conductivity. The display will change to Conductivity during calibration if the **Aqua-C** is in TDS or Salinity Mode.



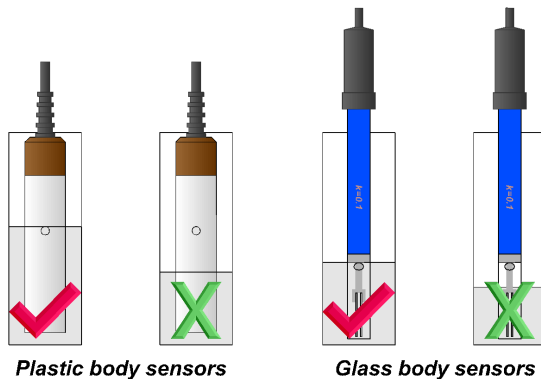
A “*” will not be removed after a zero calibration.

6. Standard Calibration

Allowable Conductivity standards are listed in section 1.3 and should be selected according to your range of measurement.




Place the sensor into a sample of Conductivity standard, so that it is immersed at least to the vent hole in the white plastic cover. The white plastic cover **MUST** be in place for correct readings.

Glass sensors must be immersed to the hole in the glass body. See the diagrams over the page.



DO NOT place the sensor directly into the bottle of standard.

Discard the used sample of standard after use. It is advisable to use a narrow sample vessel to minimise the use of standard solution.

When the reading has stabilised, Press the  key to calibrate. The **Aqua-C** will prompt the user to select the parameter if a combination display is shown. Use the  or  keys to select Conductivity. The display will change to Conductivity if the **Aqua-C** is in TDS or Salinity Mode during calibration.

The “*” will now be replaced by a decimal point, if calibration was successful.

The **Aqua-C** is now calibrated for Conductivity.



The TDS and Salinity values are derived from the Conductivity reading and do not require a separate calibration.

3.2 Calibration Notes

1. A Zero calibration should be performed at least monthly. In low conductivity applications (where a zero error is particularly significant) a zero calibration may have to be done weekly.
2. A Standard calibration should be performed at least weekly. Of course, more frequent calibration will result in greater confidence in results.
3. All calibration information is retained in memory when the **Aqua-C** is switched off, even when the battery is removed.

3.3 Calibration Messages

1. If a Zero calibration has been successfully performed, the **Aqua-C** will display zero value of the sensor. For example...

```
Cal. OK  
Zero= 0.01uS
```

2. If a Standard calibration has been successfully performed, the **Aqua-C** will display the calculated k factor of the sensor. For example...

```
Cal. OK  
k=1.10
```

3. If a Standard calibration has failed, the **Aqua-C** will display the calculated k factor of the sensor following message, and then the failed span value of the sensor.

```
Cal. Failed  
k=0.60
```






4. The **Aqua-C** will display the following message if it fails to recognise the calibration standard. This can occur if the calibration standard is incorrect, or if the sensor response is incorrect by a very large margin.

**Unknown Std.
Not ReCal.**

Note that the decimal point is replaced by a “*” when a Standard calibration fails.





4. Temperature Calibration

A “*” in place of the decimal point indicates that the Temperature readout is not calibrated, or a past calibration has failed. The “*” will be removed once Temperature has been successfully calibrated.

1. Switch the **Aqua-C** on.
2. Select Temperature mode (see section 2).
3. Plug the Conductivity sensor into the sensor socket.
4. Place the sensor into a beaker of room temperature water, alongside a good quality mercury thermometer. Stir the sensor and the thermometer gently to ensure an even temperature throughout the beaker.
5. When the reading has stabilised, press the  key to calibrate. The **Aqua-C** will prompt the user to select the parameter if a combination display is shown. Use the  or  keys to select Temperature.
6. The reading from the sensor is now displayed on the top line, and the value you are going to set is on the bottom line. For example...

Enter 25.0°c
Temp ↑ 26.0 ↓



7. Press the  and  keys until the bottom line shows the same temperature as the mercury thermometer.
8. Press the  key to calibrate the temperature readout.
Alternatively, press the  key to abort temperature calibration.

4.1 Calibration Notes

1. Temperature calibration information is stored in memory when the meter is switched off, even if the battery is removed.
2. Temperature does not need to be re-calibrated unless the Conductivity sensor is replaced or the meter is initialised.



4.2 Calibration Messages

1. If a temperature calibration has been successfully performed, the **Aqua-C** will display the offset value of the sensor. For example...


```
Cal. OK  
Offset=1.0°C
```

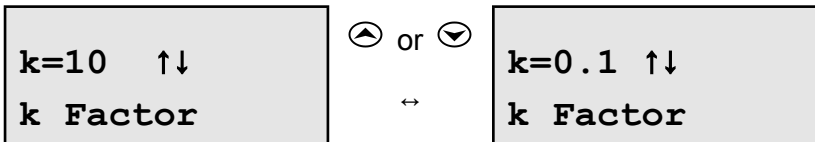
2. If a temperature calibration has failed, the **Aqua-C** will display the failed offset value of the sensor.




```
Cal. Failed  
Offset=10.5°C
```

5. Selecting k=10 or k=0.1 sensor

The **Aqua-C** automatically recognises a k=1.0 sensor. The **Aqua-C** **does not** automatically recognise k=0.1 or k=10 sensors. When a k=0.1 or k=10 sensor is used, the **Aqua-C** must be set to the correct k factor before use. The following procedure describes how to select a k=0.1 or k=10 sensor.

1. Switch the meter **OFF**.
2. Connect the k=0.1 or k=10 sensor.
3. Press AND HOLD the  key while switching the meter back on. The k factor selection menu is now displayed (only if the k=0.1 or k=10 sensor is connected)...



4. Press the  and  keys to alternate between a k=10 and a k=0.1 sensor.
5. Press the  key to save the selected setting.

Notes

1. The manual k factor selection is kept in memory when the meter is switched off, even if the battery is removed.
2. The manual k factor selection is reset to k=10 during initialisation.
3. The **Aqua-C** will always automatically recognise a k=1.0 sensor, regardless of the manual k factor selection.
4. Calibration settings for k=0.1, k=1.0 and k=10 sensors are **NOT** stored separately. The **Aqua-C** requires re-calibration when a new k factor sensor is connected.




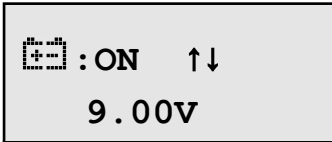
6. Battery



6.1 Battery Saver Function


The **Aqua-C** is equipped with a battery saver function. If no button has been pressed for five minutes, the unit beeps and flashes the display for 20 seconds, and then shuts off. This function can be disabled for continuous use.


To enable or disable the battery saver function:

1. Switch the **Aqua-C** on.
2. With the meter already switched on, press and HOLD the  key for 3 seconds.
3. The battery saver menu is now displayed. For example...



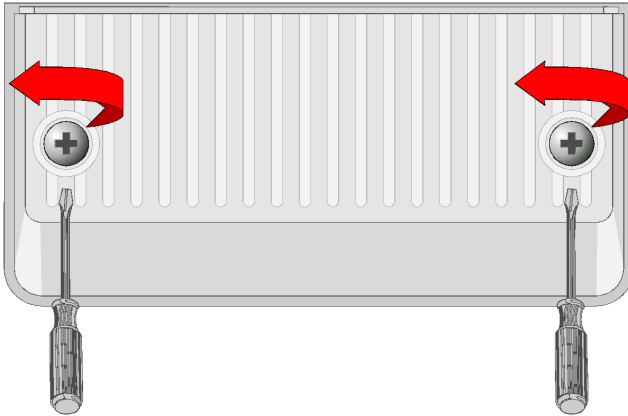
4. In this mode, use the  or  keys to toggle the battery saver function on or off.

NOTE: The display also shows the battery volts. This gives the operator an idea of how much battery life is remaining. The  symbol flashes when the battery volts drops below 7.50 volts. At 6.00 volts the meter turns itself off.

5. When you have set the battery saver function to the desired position, press the  key to return to normal measurement mode.

6.2 Changing the Battery

1. Turn the instrument over and locate the 2 battery cover screws on the rear. See the diagram below.



2. Raise the fold out stand (so it is out of the way) and then fully loosen both screws. It is not necessary to pull the screws all the way out. Lift off the battery cover.

3. Replace the battery with a new alkaline 9V battery.


4. Re-fit the battery cover and tighten the screws. **Do not over-tighten.**



7. Initialising the Aqua-C

If the calibration settings of the **Aqua-C** exceed the allowable limits, and the unit cannot be re-calibrated, then it may need to be initialised to factory default values. This action may be required if the sensor is replaced.

To initialise the **Aqua-C**:

1. Switch the **Aqua-C** off.
2. Press AND HOLD the  key while switching the **Aqua-C** on.
3. The following messages are now displayed...

**Memory & Cal
Reset !**



**You MUST
Re-Calibrate**




**TPS Aqua-C
V2.1 S1234**

4. The meter then displays Conductivity and Temperature. Note that the decimal points have been replaced with a "*", to indicate that the unit requires re-calibration.



8. Troubleshooting

8.1 General Error Messages

Error Message	Possible Causes	Remedy
Factory Cal. Fail See Handbook	The EPROM chip which contains the factory calibration information has failed.	The unit must be returned to TPS for service. <ul style="list-style-type: none"> • Conductivity, TDS and Salinity readings will be accurate only if used in same range in which it was calibrated. • Temperature readings may be up to 10% incorrect.
Memory Failed Calib. Lost Memory Reset ! You MUST Re-Cal.	User calibration settings have been lost or corrupted.	Re-calibrate the instrument. Both a Zero and a Standard calibration will be required for Conductivity (sections 3) and a 1 point calibration for temperature (section 4).
Meter displays the word OFF , and switches off.	Battery is below 6.00 volts.	Replace the battery.
Meter will not turn on.	Battery is exhausted.	Replace the battery.
Flashing  symbol.	Battery is below 7.50 volts.	Replace the battery soon. Note that the unit will switch itself off when the battery falls below 6.00 volts.



8.2 Conductivity and TDS Troubleshooting

Symptom	Possible Causes	Remedy
Unit fails to calibrate, even with new sensor.	Calibration settings outside of allowable limits due to previous failed calibration.	Initialise the unit. See section 7.
Unit attempts Span calibration instead of Zero calibration.	Sensor has Zero error.	Thoroughly rinse sensor in distilled water and allow to completely dry in air before attempting zero calibration. If instrument does not calibrate at Zero with sensor disconnected, then the instrument is faulty.
Standard calibration fails, and span is less than 75%.	<ol style="list-style-type: none"> 1. Sensor is not immersed deeply enough. 2. Sensor may have a build-up of dirt or oily material on sensor wires. 3. Platinum-black coating has worn off. 4. Standard solution is inaccurate. 5. Sensor is faulty. 	<p>Immerse sensor at least to the vent hole in the white plastic cover.</p> <p>Clean sensor, as per the instructions detailed in section 9.1.</p> <p>Sensor requires replatinisation. Return to the factory, or see details in section 9.2.</p> <p>Replace standard solution.</p> <p>Return sensor to factory for repair or replacement.</p>
Standard calibration fails, and span is greater than 133%.	<ol style="list-style-type: none"> 1. White protective cover is not fitted (plastic k=1.0 sensor). 2. Standard solution is inaccurate. 3. Sensor may have a build-up of conductive material, such as salt. 4. Sensor is faulty. 	<p>The white protective cover MUST be fitted for correct readings.</p> <p>Replace standard solution.</p> <p>Clean sensor, as per the instructions detailed in section 9.1.</p> <p>Return sensor to factory for repair or replacement.</p>



Continued next page...

Conductivity and TDS Troubleshooting, continued...

Inaccurate readings, even when calibration is successful.	<ol style="list-style-type: none"> Sensor may have a build-up of dirt or oily material on sensor wires. Platinum-black coating has worn off. 	<p>Clean sensor, as per the instructions detailed in section 9.1.</p> <p>Sensor requires replatinisation. Return to the factory, or see details in section 9.2.</p>
Readings drift.	<ol style="list-style-type: none"> Sensor may have a build-up of dirt or oily material on sensor wires. 	<p>Clean sensor, as per the instructions detailed in section 9.1.</p>
Readings are low or near zero.	<ol style="list-style-type: none"> Sensor may have a build-up of dirt or oily material on sensor wires. Sensor is not immersed deeply enough. Sensor is faulty. 	<p>Clean sensor, as per the instructions detailed in section 9.1.</p> <p>Immerse sensor at least to the vent hole in the white plastic cover.</p> <p>Return sensor to factory for repair or replacement.</p>
Display flashes "ATC" and "LIMIT"	The Temperature is not within the ATC limits.	Cool/Heat solution before taking measurements.

8.3 Temperature Troubleshooting

Symptom	Possible Causes	Remedy
Displays "OVR°C" when sensor is plugged in.	<ol style="list-style-type: none"> Faulty sensor. Faulty instrument. 	<p>Fit new sensor, part number 122201.</p> <p>Return instrument to factory for repair.</p>
Temperature inaccurate and cannot be calibrated.	<ol style="list-style-type: none"> Faulty connector. Faulty sensor. Faulty instrument. 	<p>Check the connector and replace if necessary.</p> <p>Fit new sensor, part number 122201.</p> <p>Return instrument to factory for repair.</p>



9. Appendices

9.1 Care, Cleaning and Maintenance of Conductivity Sensors

9.1.1 Care of Conductivity sensors

The conductivity section of the sensor supplied with your **Aqua-C** consists of two platinum wires that are plated with a layer of “platinum-black”. This is quite a soft layer and is required for stable, accurate measurements. In time, the platinum-black layer may wear off in some applications, at which time the sensor will require replatinising (see section 9.2). You can help to maintain the platinum-black layer by following these simple rules:

1. **NEVER** touch or rub the sensor wires with your fingers, cloth etc.
2. Avoid using the sensor in solutions that contain a high concentration of suspended solids, such as sand or soil, which can abrade the sensor wires. Filter these types of solutions first, if possible.
3. Avoid concentrated acids. If you must measure acids, remove the sensor immediately after taking the measurement and rinse well with distilled water.

Conductivity sensors can be stored dry. Ensure that the sensor is stored in a covered container, to avoid dust and dirt build-up.

9.1.2 Cleaning of Conductivity of Sensors.

Platinised platinum Conductivity sensors can only be cleaned by rinsing in a suitable solvent. **DO NOT wipe the sensor wires**, as this will remove the platinum-black layer.

1. Rinsing in distilled water will remove most build-ups of material on the sensor wires.
2. Films of oils or fats on the sensor wires can usually be removed by rinsing the sensor in methylated spirits.
3. Stubborn contamination can be removed by soaking the sensor in a solution of 1 part Concentrated HCl and 10 parts distilled water. The sensor should not be soaked for more than approximately 5 minutes, otherwise the platinum-black layer may start to dissolve.
4. If all of these methods fail, then the last resort is to physically scrub the sensor wires, which will remove the contaminant and the layer of platinum-black. Use only a cloth or nylon scouring pad. **DO NOT USE**



STEEL WOOL. The sensor will then need to be cleaned in HCl, as per step 3 and replatinised, as per section 9.2.



9.2 Replatinising Conductivity Sensors

There are several ways to replatinise Conductivity sensors.

1. The simplest way is to return the sensor to the TPS factory. We can fully clean the sensor, replatinise it and test all aspects of its performance.

2. An automatic replatiniser is available from TPS, along with replatinising solution. This will plate the sensors for the right amount of time at the correct current. Ordering details are as follows:

Automatic Conductivity Sensor Replatiniser Part No 122160
20mL Platinising Solution (for approx 30 uses) Part No 122300

3. Conductivity sensors can be manually replatinised, according to the following procedure:

1) Soak the sensor in a solution of 1 part Concentrated HCl and 10 parts distilled water for approximately 5 minutes.

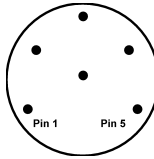
2) Rinse the sensor well in distilled water.

3) Immerse the sensor in platinising solution at least to the vent hole in the white plastic cover. Platinising solution is available from TPS (part no 122300). Alternatively, platinising solution can be prepared by dissolving 1g of Hydrogen Chloroplatinate (H_2PtCl_6) in 30mL of distilled water, and including about 0.01g of Lead Acetate ($(\text{CH}_3\text{COO})_2\text{Pb}$) and a drop or two of concentrated HCl.

4) Apply a direct current of 10mA between pins 1 and 5 of the sensor plug, as per the diagram below. Reverse the polarity every 30 seconds. After approximately 8 minutes (4 minutes per sensor wire), they should have an even "soot" like appearance. Avoid excess current and this will cause incorrect platinising.

5) After platinising, rinse the sensor well in distilled water.

6) If you have any doubts about any of these steps, then you should consider returning the sensor to the factory. The cost of replatinising is quite low, and you will be guaranteed of the best possible result.



Sensor Connector

9.3 Instrument software version number.

If you need to phone or fax TPS for any further technical assistance, the version number of your **Aqua-C** firmware may be of benefit to us. Please obtain the version number before phoning or faxing.

The version number is displayed on the bottom left of the display when the **Aqua-C** is switched on. For example...

TPS AQUA-C V2.1 S1234
--

“v2.1” in this example is the firmware version number.

“s1234” in this example is the instrument’s serial number.



10. Warranty

TPS Pty Ltd guarantees all instruments and sensors to be free from defects in material and workmanship when subjected to normal use and service. This guarantee is expressly limited to the servicing and/or adjustment of an instrument returned to the TPS Pty Ltd Factory Service Centre, freight prepaid, within twelve (12) months from the date of delivery, and to the repairing, replacing, or adjusting of parts which upon inspection are found to be defective. Warranty period on sensors is six (6) months.

Freight costs to and from the factory are the responsibility of the purchaser. Shipping damage is not covered by this warranty.

TPS Pty Ltd accepts no liability for any incidental or consequential damages caused by or resulting from the use or misuse of this equipment either due to failure of the equipment, incorrect calibration, incorrect operation, or from interpretation of information derived from the equipment. Specifications are subject to change without notice. This warranty becomes invalid if modifications or repairs are carried out on this unit by unauthorised persons. There are no express or implied warranties which extend beyond the face hereof.

Procedure for Service

Please read service details on our '**Service and Repair**' page at www.tps.com.au.

TPS Pty Ltd has a reputation for prompt and efficient service. If you feel that this equipment is in need of repair, please re-read the manual. Sometimes, instruments are received for "repair" in perfect working order. This can occur where batteries simply require replacement or re-charging, or where the sensor simply requires cleaning or replacement.



Return the instrument AND ALL SENSORS to TPS Pty Ltd freight pre-paid. It is your responsibility as the sender to ensure that TPS Pty Ltd receives the unit, so consider using a traceable freight service.

Please check that the following is enclosed with your equipment:

- **A TPS 'Service / Return Goods Form' – from our website**
- **Your full name**
- **Your company name**
- **Your email address**
- **Your return street address**
- **A description of the fault. (Please be specific - "Please Repair" does not describe a fault.)**

Your equipment will be repaired and returned to you by express air freight where possible.

For instruments beyond warranty period, a repair cost will be calculated from parts and labour costs and emailed to you. If you decline to have the equipment repaired, the complete instrument will be returned to you freight paid, not serviced.