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Check Stab Alfa 2015
iDRY
Instruction Manual

INDEX

1 General instructions and informations for the consignee

1.1 Warranty

1. The **Check Stab α2015 iDry**® is guaranteed against the manufacture defects and against the possible damages during the normal use within a year since the purchasing date.
2. We call "normal use" conditions the ones foreseen by the specific technical documentation, by the possible changes (the user will be informed about them) and by the user guide delivered with the instrument.
3. Electrodes, and the damage caused by an improper use of the instrument or by natural events (lightning, floods, fires, etc…) are not included in the warranty.
4. In this guarantee, DELTA ACQUE will repair or will replace the instrument or some parts of them in its factory (only the parts mentioned in the part 1, 2 and 3). The user has only to pay the transportation charge.
5. The guarantee is not valid if the instrument is damaged by an unauthorized person.

1.2 European Union' s rules

The **Check Stab α2015 iDry**®, like all the DELTAACQUE' instruments, was designed observing the current law about the emissions and the electro-magnetic compatibility requested by the Euuropean Union's rules. The **Check Stab α2015 iDry**® respects the following rule:

CEM:	EU89/336CE;	
Emission:	EN50081-1:1992,	
	EN55011:1991 Class B Group 1;	
Exemption:	EN50082-1:1992,	
	CEI801-2:1991 4KV CD, 8KV AD,	
	CEI801-3:1984 3V/m	
	CEI801-4:1988	Feed line 1KV
		Signal line 0,5KV

1.3 General and safety instructions

The user must observe the following rules to avoid some injuries and prevent the damages to the product or the connected ones. To prevent the potential dangers the user must use the instrument how we have described.

Only the qualified personnel can do the upkeep procedure.

1.4 To avoid fires and physical damage

Use an appropriate power supply. The user must use only the specified power cable and the certified one for the country where the instrument is being used.

Connect and disconnect correctly. The user does not have to connect or disconnect the electrodes when the instrument is turned on.

Link the instrument to ground. This instrument must be linked to ground by the appropriate conductor of the feed line.

Look at all the nominal values. To prevent fires or shocks, the user must read all the nominal values and the marks on the product. He must read the guide to have information about them before connecting something to the instrument.

Do not use the instrument without the covers. The user must not use the instrument if a cover is removed.

Use the appropriate fuses. Use only the appropriate fuses with the specified nominal value.

Don't use the instrument if you suspect there could be damage. If the user thinks that a part of the instrument could be damaged, he must contact the constructor to verify it.

Supply the appropriate ventilation. Read the appropriate chapter of the guide for the details about the installation of the instrument to have good ventilation.

Don't use the instrument in a damp or wet condition.

Don't use the instrument in an explosive environment.

Keep a clean and dry surface.

1.5 Contacts and useful address

The user can call DELTAACQUE Dott. A. Cavallucci, in Florence (Italy) to get technical service, or spare parts or other information about the instrument.

DELTAACQUE del Dott. A. Cavallucci

Via della Treccia N°37 50145 Firenze

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E-mail: **info@checkstab.com**

E-mail: **checkstab@deltaacque.it**

2 Presentation of the Product

The storage of the wines at low temperature could be the cause of the formation of a precipitate in the bottles. This does not change the wine's characteristics but could be the cause of an unpleasant appearance. In the last several years new technologies for the control and the treatment of the wine were developed to remove these problems. Delta Acque is now the leader in the field of the construction of the laboratory instrument which can do an analysis and find the appropriate treatment to solve these problems. We designed and constructed some innovative instruments thanks to several years spent in research. The last innovation is the **Check Stab α2015 iDry®**.

This instrument was designed and constructed to calculate, in a simple and fast way, if the wine has tartaric stability or not. It is possible to use the machine with the systems for the continual tartaric stabilization or with the simple systems like the refrigerating silos.

Check Stab α2015 iDry® uses a more evolved and innovative technology for the control of tartaric stability. **Check Stab α2015 iDry®** has a new refrigeration system for the sample without the use of liquid glycol; this system allows the instrument to shorten the duration of the analysis, be more precise within the measuring system and at the same time be more ecological. The instrument is equipped with a 9,9" touch screen colour display, interfaced with the software CheckStab NET® by means of LAN, meaning it can be connected directly to the winery's computer network. **Check Stab α2015 iDry®** is a completely automatic analyzer and can satisfy the needs of all wineries, from small companies to big industry, thanks to the possibility to modulate a system of up to 16 units, all managed by one software, Check Stab NET®, storing data on the same Dbase and an automatic KHT dispenser.

The high immunity of the instrument from problems is guaranteed by the integrated RESET controller: it controls that the functions of the instrument are always done in the right way; otherwise it does a reset of the instrument. The instrument has got a filter for the external parts, so it's totally trustworthy and immune to problems.

2.1 **Description of the function:**

2.1.1 Analysis' principle and measurement of conductivity

The circuit for the acquisition of conductivity is captured by a new technology, called "variable frequency": It changes the frequency of the power supply of the sensor automatically according to the scale we are using. It's useful to measure the conductivity without the problem of the sensor's polarization, so this instrument has a high level of accuracy and stability because the measurement of the conductivity is the most important part of the analysis. In fact the principle of the analysis is the difference of electric conductivity in 100cc of wine with the addition of 1 gr. of BTK for the white wines and 2gr. for the red wines.

2.1.2 Conductivity Sensor

The conductivity sensor is a cell with two electrodes of Platinated Platinum with constant 1,00 sp. The instrument has a high level of accuracy and precision because every sensor has been tested and the constant certified.

2.1.3 Thermometer sensor

Temperature is measured by a PT100 sensor, and the calibration of the instrument is made between -10°C and 20°C to guarantee the minimum measurement of 0,1°C within this range of temperature.

2.1.4 Refrigerating assembly

The **Check Stab α2015 iDry®** has state of the arts electronic technology, but is equally important mechanically and electro mechanically.

The refrigerating assembly is made up of: a refrigerator 1/3 Hp for a continuous running of the instrument and a diffuser which is inside the refrigerant's container, to have a perfect thermal contact with the thermo static bath.

2.1.5 Washing system

The **Check Stab α2015 iDry®** has a manual system for washing probes. Therefore the operator will have to clean up very well, especially the sensor assembly. For the periodic washing of the conductivity probe, Delta Acque has supplied "an appropriate cleaning solution" for washing the probe.

2.2 Description of the software's functions and hardware's performance

2.2.1 User interface

The user interface of **Check Stab α2015 iDry®** is easy to use thanks to the use of icons and intelligent windows that is visualized on the display. This allows the management of the instrument in a simple and direct way. By using the mouse, the user can act directly when a dialogue appears on the windows.

2.2.2 Analyses graphic representation

The user can visualize graphics representations of the analysis' result on the computer display. This function permits the user to interpret the results easier.

2.2.3 Registration of the data

The analyses can print results under graphical shape and text: that allows storing the analyses for successive consultations. It is also possible to export digital archives thanks to **Check Stab α2015 iDry®** that has a specific function in the software for the retrieval and the consultation of the analyses.

2.3 Warning.

Important:

- Power Supply **M.F. 230 Vac 50 Hz (or other voltage by specific request).**
- Good connection with ground.
- Clean the sensor with distilled water after every analysis (conductivity feeler =0,0µS).
- Clean the sensor periodically by denatured alcohol.
- Control the sensor periodically using the calibration solution (supplied with the instrument).

3 Presentation of the Content Organization

The contents of this guide are written in according to the Italian Regulation **UNI-10893** (technical product's documentation, Use instructions, expositive order of the contents).
For a correct use of the instrument the user must respect the contents of the guide. The consultation order is progressive so Delta Acque suggests reading the chapters in the numerical order (1.00, 2.00 ...).

3.1 Units of measurements

µS, mS: microsiemens is the measurement unit of the electric conductivity.

°C: the temperature is expressed in centigrade degrees.

4 Data and technical characteristics

4.1 Technical characteristics

Display	**9,9" Touch Screen**
Electronic device	**Internal measuring and Acquistion**
Interface for PC	**Lan**
Conductivy Cell	**2 Platinum Plated electrodes, Kost. 1,00**
Thermal metric probes	**PT100 1/3 Din 3 Wires**
Sample mixer	**With Stepper Motor**
KHT Dispenser	**Automatic**
Heating	**IR Emitter 100Watt**
Refrigeration group	**1/3 Hp. internal evaporator in inox steel**
Ventilation	**By forced air**
Power supply	**230 Vca 50 Hz. – 500 Watt. ****
Container	**Metallic finished steel**
Cleaning probe	**Manual**
Weight	**27 Kg. - 59,5 Pounds**
Dimension	**240 x 480 x 445mm – b x l x h**

4.2 Accessories

Feed cable	**Supplied**
Calibration solution	**Supplied**
Test solution	**Only on request**
Beker di Misura	**Supplied**
Accessories for cleaning	**Supplied**
KHT package 100grams	**Supplied**

4.1 Conductivity probe

The conductivity probe of **Check Stab α2015 iDry®** has been purposely studied to measure the conductivity in wines and in particular is adapted for the analyses of the tartaric stability. The system of measurement of conductivity uses a cell of 2 electrodes. Data acquisition is collected between the two electrodes, positioned opposite each other. This new system studied by Delta Acque has succeeded to eliminate problems of interferences, guaranteeing excellent precision and repeatability of measurements.
The system has two scales of measure:
2999,9µS with resolution of measure of 0,1µS and 29999µS with resolution of measure of 1µS.
The type of conductivity cell used has two electrodes in platinum platinized to constant 1,00.

4.2 Thermometer of the evaporator

Thermometer PT100 with PT100 probe to 3 spins.
Field of measurement: from -20°C to +80°C with measurement resolution ±0,1°C
Diameter probe: Ø4mm

4.3 Thermometer of the wine

Thermometer PT100 with PT100 probe to 3 spins.
Field of measure: from -20°C to +80°C with measure resolution ±0,01°C
Diameter probe: Ø3mm. The smaller diameter allows for a greater precision for measuring during the saturation analysis.

**or other voltages by specific request

5 First Installation

5.1 Storing and conservation conditions

The user must keep the **Check Stab α2015 iDry** in a dry place and between 5,0°C and 40,0°C. It's very important to read the following advice to preserve the sensor in the best condition.

To keep the sensor in the best condition:

- Clean it at the end of the analysis by distilled water every time.
- Clean the conductivity sensor periodically, by an immersion into cleaning solution and rinse it with distilled water.
- DO NOT use, for sensor cleaning, objects or material dangerous for the platinum-plating of the electrodes.

5.2 Transport

If possible, put the instrument in the original wooden case to prepare for transport.
The conductivity probe should be disconnected as explained in the user guide section 8. Put it into a sturdy case. It is important to avoid moving with a heavy load if you do not use the appropriate packing materials.

5.3 Moving

To move the instrument it's important to disconnect it from the power source, empty the bath of the refrigerating liquid and remove the hydraulic connections.
For a new installation follow the instructions in the chapter 5.5 Link and start.

5.4 Putting in place the instrument

Put the instrument on a stable surface with the right dimensions (the minimum measurements are 100 cm x 50 cm) with an appropriate support for the instrument's weight, in a dry place and far from a heating source.

5.5 Links and start

The user must read the following instructions to link the hydraulic system.
CONDENSATE DRAIN: Connect the tube for condensate drain with a suitable drain.

5.6 Placing the conductivity probe

If the conductivity probe has not be mounted on the probe assembly at delivery, put the conductivity probe in its appropriate position, being careful to connect to assembly with extreme care.

5.7 Link to the electric line

Link the power cables (issued) to the electric line 230Vca 50/60 Hz + GROUND (or other voltages by specific request). **To avoid problems with power supply variations in the laboratory, Delta Acque recommends connecting the instrument to a voltage stabilizer for a correct power supply.**

5.8 **Proceed with the installation of the instrument.**

- Put the instrument on the rigid surface with the appropriate dimensions.
- Put the rubber tube on “condensate drain” nipple, and connect it with an appropriate drain. (Back view, picture 1).
- Connect the power supply cable at the back of the instrument to the power supply (Back view, Picture 1).

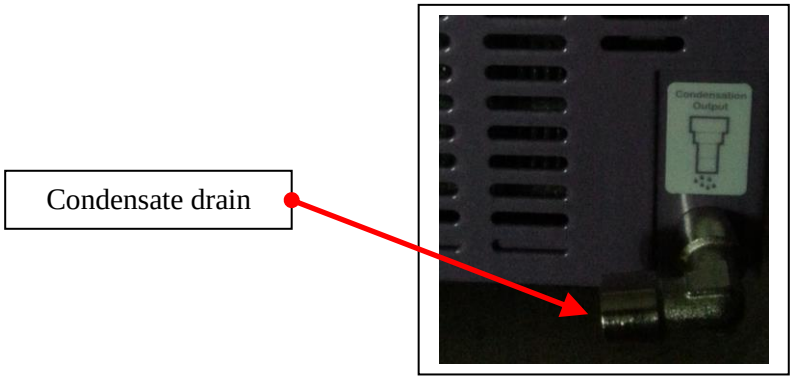


Fig. 1

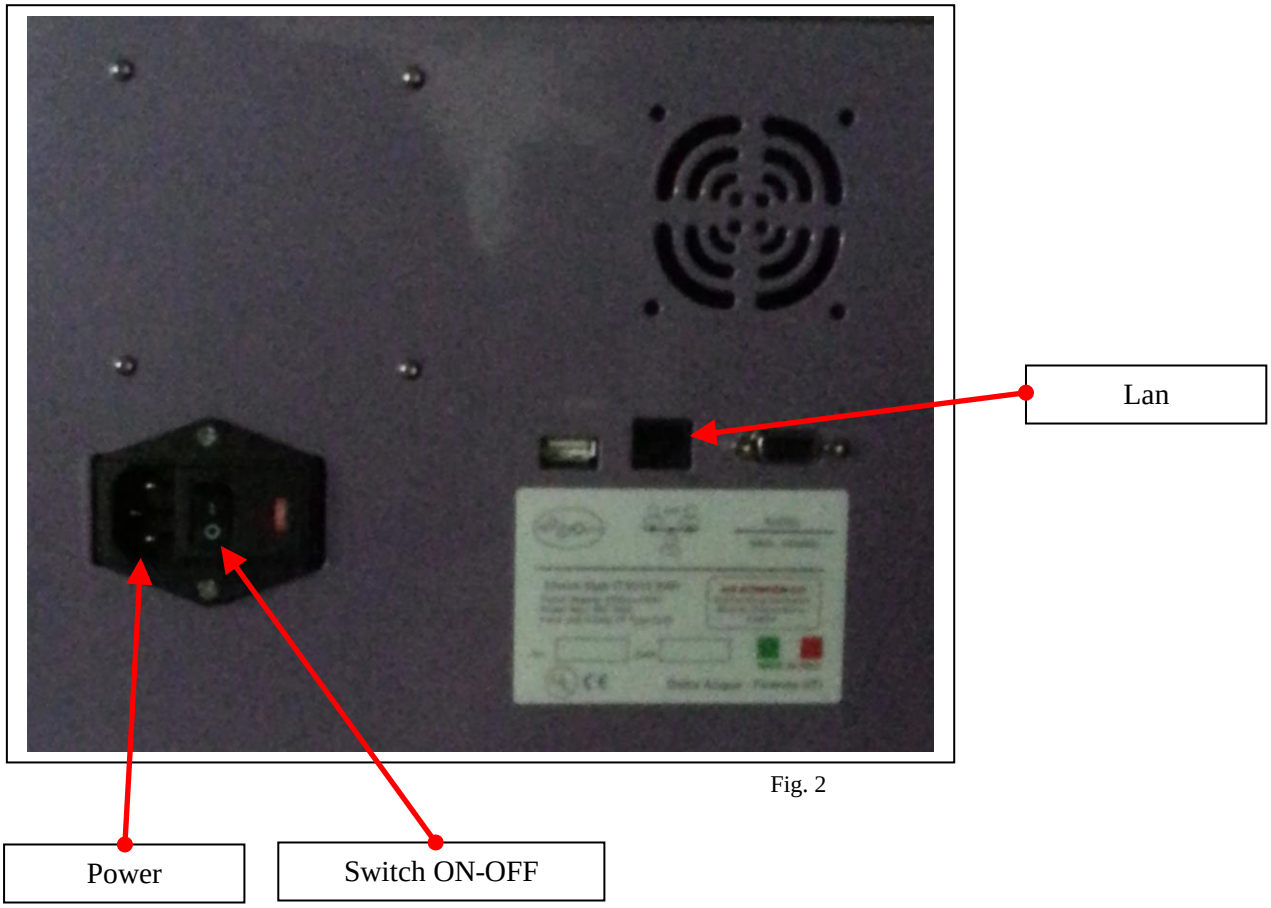


Fig. 2

- Connect the instrument to the instrument by means of the LAN cable.

5.9 **Switching on:**

After following all the installation procedures described in the previous paragraphs, it is now possible to switch the instrument on. Switch **ON** by means of the switch found at the back of the instrument. On the display, the following will appear as shown in the photograph below.

The display indicates the serial number of the instrument and its IP codes and Mac.

Press “ON” to start the Check Stab α2015 iDry.

Attention: The **Check stab α2015 iDry** has been designed to work with the software **Check Stab NET**, and therefore it is necessary to open the **Check Stab NET** program on the computer and put it in communication with the instrument. The operator can then decide to use either the touch screen panel of the instrument or the computer by means of the software check **stab NET**.

5.10 **Supplied accessoires**

The supply includes:

- Feed cable 220V 50Hz. **
- A bottle by 100Gr of BTK (Code D5251)
- Measuring spoon 1gr. / 2Gr. For BTK
- Calibration solution 1278.0 µS. (Code D5205)
- Test solution 500µS/10°C (Code D5254) Only on specific request
- Beaker Schoot /Duran 150ml (Code D5217)
- Sprinkler for cleaning 500ml
- Bucket for cleaning
- Rubber tube for "Condensate Drain" - 10x14 1,5 mt.
- Cork for cooling chamber
- Kit fusible 5x20 Amp.
- User guide Manual
- User guide software
- Check Stab NET software (CD)
- Cable LAN 1,5 mt.
- Hub LAN multi input ***

**Or other cable for other vaoltages by special request

***Only for Slave Machine

5.11 **Consumable Material**

Here below is a list of consumable materials used by the Check Stab instrument:

- Conductivity Probe

  The software Check Stab NET contains a specific control of the % life of the conductivity electrode. It is recommended to replace the electrode when this percent drops below 20%. This is because when the electrode is worn, it tends to read less drop in conductivity measurements and consequently an error in stability values.

- Reagent (Potassium Bitartrate)

  The reagent is the substance that the Check stab instrument adds to the wine sample by means of the automatic dispenser to make an analysis. In addition to this manual, a technical document booklet is supplied with the instrument. A document with the technical characteristics of the reagent supplied by Delta Acque is found in this booklet.

- Calibration solution

  The calibration of the conductivity electrode is performed with this solution.

- Test solution

  The test solution is used only to verify the correct functioning of the Check Stab instrument. This solution is very instable, with a shelf life of 7 days.

6 Beginning Window

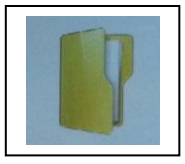
Once switching on the instrument the following window appears:

The dark grey keys can be clicked on while the light grey keys are for reading only.

- OFF Icon

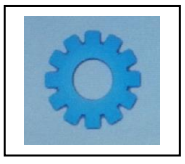
This icon is used to switch the instrument off. For more information see paragraph 12 on page 34

- Projects



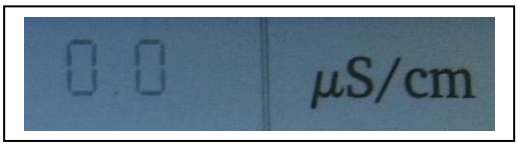
This icon is used to open the project page. For more information see paragraph 13 on page 35.

- Measurement parameters



This icon is used to open the measurement partameter page. For more information see paragraph 7 on page 18.

- Sample conductivity

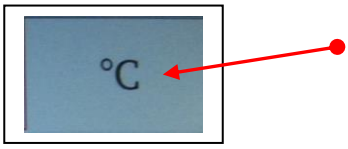


This is a reading only window, it shows the user in real time the conductivity of the sample expressed in µS. Thanks to the large screen, the user can see clearly the variation throughout the entire analysis.

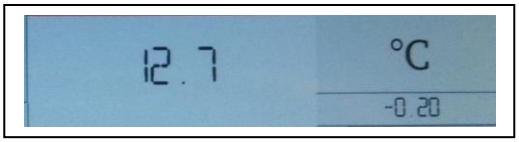
- Sample temperature

This is a reading only window, it shows the user in real time the temperature expressed in °C of the sample. Thanks to the large screen, the user can see clearly the variation throughout the entire analysis.

The user can modify the temperature by pressing the icon "°C" as shown by the red arrow and set the desired temperature of the bath.
The color of the temperature indicates:
Red Color: temperature in a phase of variation
Green Color: stable temperature.



- Evaporateur temperature

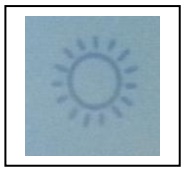


This window shows the user in real time the temperature expressed in °C of the evaporateur.

- Refrigeration

This is a reading only window, it shows the user that the compressor of the refrigeration circuit is working: in this case, a green color at center of symbol will be lit.
During the heating process of an analysis, this green color will not appear in the center of the symbol and the symbol will be a grey color.

- Heating System



This is a reading only window, it shows the user the current state of the heating system, the icon is green when the heater is working.
The icon will be a grey color when the heater is not working as the instrument is in the cooling process, not necessitating the use of the heater.

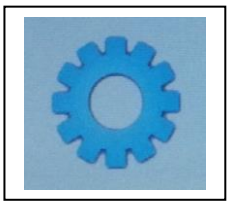
- Heating System malfunction

This icon indicates a malfunction of the heating system. If the heating lamp is not working correctly the icon indicates the fault and the operator has to replace the broken lamp.

- Generic data of the instrument

This is a reading only window, informs the user the correct switching on of the instrument (100%), indicates the current date and hour (26-01-2016 10:45:48, the firmware version (4.32) and the serial number of the instrument (10603 7/2015).

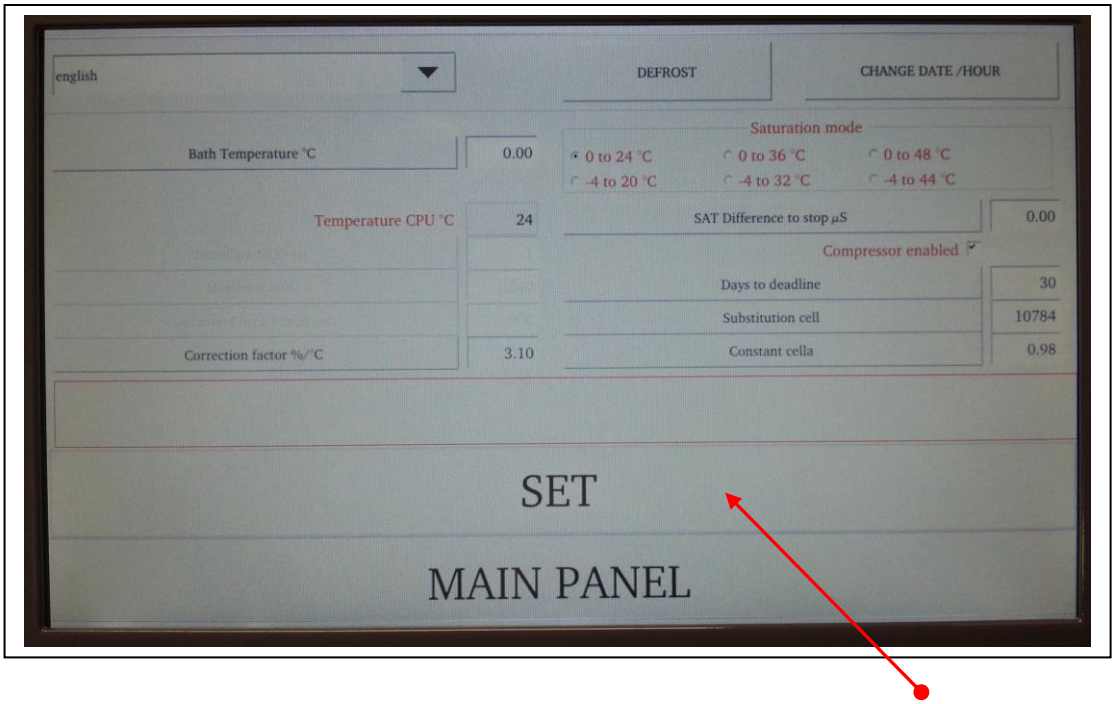
7 Measuring parameters



Pressing on the this icon opens the following window:

7.1 **Parameters**

Pressing on the icon PARAMETERS opens the window where the user can modify various options. The menu "parameters" contains both parameters that can be modified and parameters for reading only. The parameters that can be modified are to be used by the user to modify working parameters of the check stab instrument. These parameters are protected by a password. The window appears as the figure below.



To modify the parameters the user must press "SET indicated by the red arrow.
A password window opens. It is necessary to write in the password. The default password is "1234", but it is possible to change it at any time.

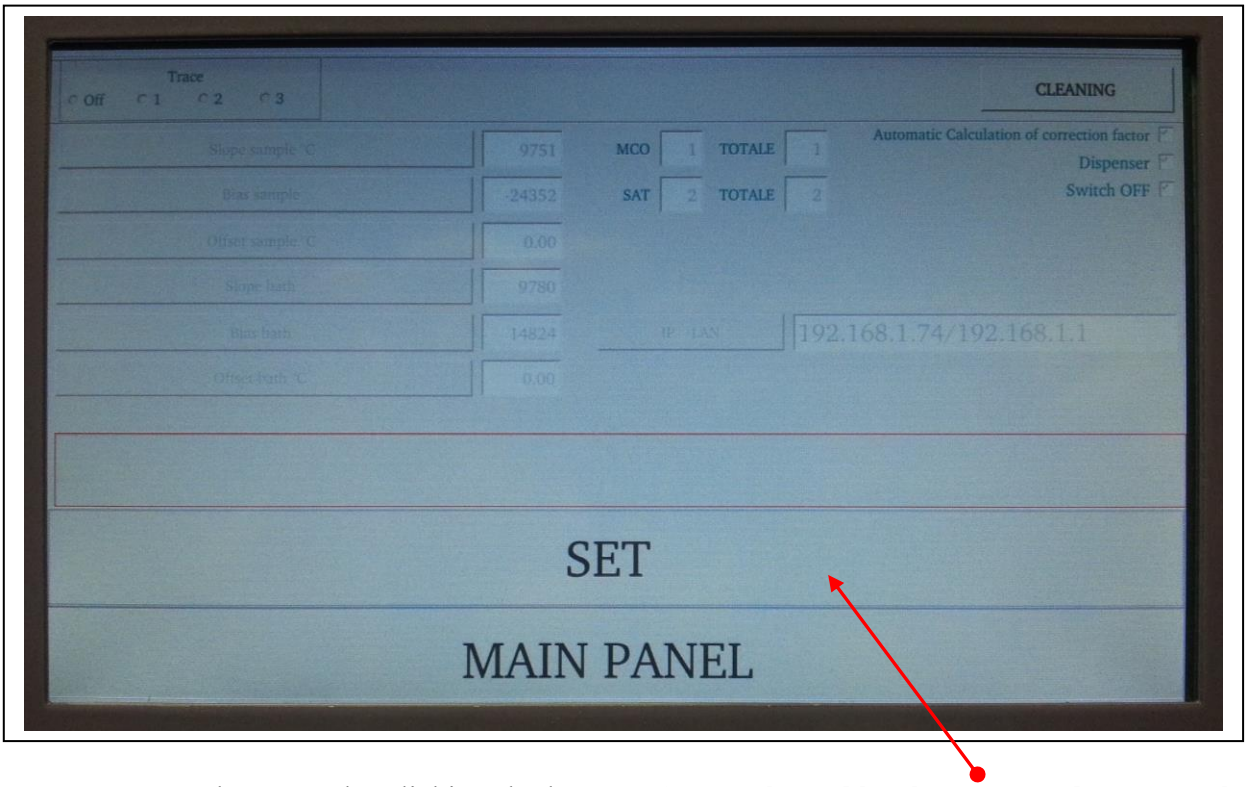
By pressing "Main Panel" the software returns to the previous window.

Below a list of all parameters that can be modified by user working :

- **Language:** to change the language
- **Working temperature**: This is the programmed temperature of the thermal bath.
- **Duration Check future**: During the long mini contact analysis, the instrument calculates a curve to forecast in the future the stability of the wine sample. This function is for programming the maximum time that the long mini contact will run the analysis. Delta Acque recommends that this function be programmed for at least 30 minutes to obtain a clean curve.
- **Correction factor**: This value indicates the variation of conductivity measurements in % with respect to temperature variations. This value should fall between 3 and 5,5. If the value is not within these parameters, it means that the instrument could have problems. If the sample wine is put in the bath at a low temperature, the instrument will automatically not perform the correction factor function. In this case it will use the last correction factor value memorized on the instrument. The reason this occurs is because the instrument does not have an adequate range of temperature of the sample wine when it is already cold, and would thus calculate incorrectly the correction factor. This correction factor is used to correct eventual minimal variations in temperature during the analysis. Since the instrument has an automatic KHT dispenser, it is not necessary to do the correction factor since the instrument waits until the instrument has reached stable temperature automatically before adding KHT crystals.
- **Saturation mode**: This function is used to program Saturation Test mode.
- **Compressor enabled:** This function is used to de-activate the cooler. When written "Cooler enabled" the cooler is activated.
- **Days to dead line:** This parameter reminds the user when to do a calibration of the conductivity probe. By default,14 days. This means that after 14 days from the calibration of the probe, the date will become a red colour, reminding the user to calibrate the probe. In the example to the right the calibration was done 14/12/2012 and will remind the user 14 days later, 28/12/2012.
- **Substituition Cell**: This parameter indicates the serial number of the probe mounted on the instrument. This number is found on a small label on the conductivity probe.
- **Cell constant**: This parameter indicates the cell constant of the probe mounted on the instrument. This number is found on a small label on the conductivity probe.
- **Defrost**: Click this icon to make defrosting the evaporateur. it is recommended to defrost before switch off the instrument.
- **Change Date/Hour**: To change the data and the hour of the instrument.

7.2 **Service**

A few instrument parameters are found in the menu “Service”. These parameters have been previously set by the instrument manufacturer and cannot be modified by the user of the instrument. Only qualified personel from DELTAACQUE can change these parameters.



The operator, may however, by clicking the button “SET” indicated by the arrow and inserting the standard password “1234”:

- Enable the “Trace” service
- Enable or disable the automatic correction factor calculation.
- Change the “IP LAN” for the connection to the PC.
- Click the key “CLEANING” to put in motion the wine mixer.
- See the total number of minicontact analysis made.
- See the total number of Saturation analysis made.

All other parameters can be modified only by entering a password that only qualified **Delta Acque** technicians knows.

Follows is a brief description of these parameters

- **Sample probe slope:** Parameter for the calibration of the PT100 of the wine sampe.
- **Sample probe bias:** Parameter for the calibration of the PT100 of the wine sampe.
- **Sample probe offset:** Parameter for the calibration of the PT100 of the wine sampe.
- **Bath probe Slope:** Parameter for the calibration of the PT100 of the bath.
- **Bath probe bias:** Parameter for the calibration of the PT100 of the bath.
- **Bath probe offset:** Parameter for the calibration of the PT100 of the bath.

8 Procedure for verifying

8.1 **Procedure for verifying Calibration**

8.1.1 Conductivity.

To obtain accurate results in measurement, we advise to calibrate the sensor in the following manner.

Verify by doing a calibration of the conductivity sensor by using the solution provided with the machine (1278,0µS) at the beginning of each day's use.

Verify that the calibration of the sensor remains in the range admissible 1278,0µS ±1% (do the verification at 0,0°C). If not in this range, the user must calibrate the sensor. (see paragraph 14.4 that follows)

The calibration of the conductivity sensor should be done every 15 days. In any case the software will remind the user to calibrate the sensor.

The precision of the measurement of conductivity is strictly related to the precision of the calibration, and consequently the calibration solution as well. It is important to note that the more precise the calibration the more precise the measurements of precipitation. The precision is measured by repeatability of analysis with a margin of error:

±0,10% on a scale 3000,0 µS

For optimum results, use solutions prepared recently and not re-cycled.

Refer to paragraph 14.4 for instructions for calibration.

8.1.2 Temperature Probe PT100

For optimum results, verify and calibrate the thermometer in the follow manner.

Verify the accuracy of the temperature probes Pt100 (wine sample & bath) every three months, by means of a certified laboratory thermometer (Primary Standard). When the user finds variations, use the calibration commands in parameter section to off set the thermometer variations.

It is advisable to calibrate the temperature probes every year, with a certified standard and the sensor itself. This must be done by an authorized technician at DELTA ACQUE.

8.2 **Preparation Calibration Solution KCL 0,01N**

Prepare a calibration solution **1278uS/c**m equivalent to a preparation of a solution **0,01N** in **KCL** keeping in mind that the calibration solution has the conductivity reference value at **20°C**.

The solution is made as follows:

1. Dry **KCL** in an oven at **110°C** for 3 hours and let cool to room temperature in a dryer.
2. Weigh exactly **0,7455g** the **KCL** and transfer all of it in a flask of **1000ml.**
3. Dissolve the salt completely with distilled water and put it at volume.
4. Before using, stir the solution very well.

Note: The series Check Stab ® instruments are calibrated with a value of 1278,0uS at a temperature of 0,0°C, with a reference at 20°C. This is our standard and guarantees our standard precipitation measurements.

8.3 **Preparation TEST Solution**

To prepare 1 liter of solution do as follows:

1. Dry **KCL** in an oven at **110°C** for 3 hours and let cool to room temperature in a dryer in a dryer.
2. Weight exactly **2,900g** of **Potassium Bi tartrate** ***(pure for analysis)*** and transfer all of it in a flask of **1000ml.**
3. Fill the flask 2/3 full (approx. 0,66 Liters) with distilled water and stir until the solids have dissolved.
4. Weight exactly **0,6500g KCL** and transfer all of it in a flask with the previously prepared solution.
5. Stir until the added KCL is completely dissolved, and bring it to 1 Liter volume with distilled water.
6. Homogenize the solution before using.

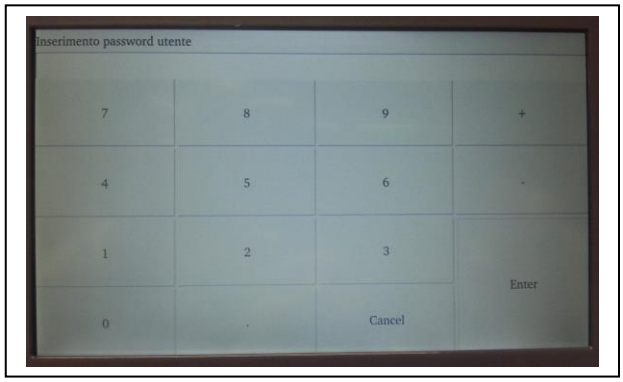
The test solution is used to verify the correct functioning of the instrument. This solution is used as if it were a white wine. The final Mini Contact result must be approximately 500 µS (±50 µS) and 11°C (±1°C) for the saturation test.
The test solution expires after 10 days, after which it is no longer reliable.

9 Calibrating Conductivity Probe

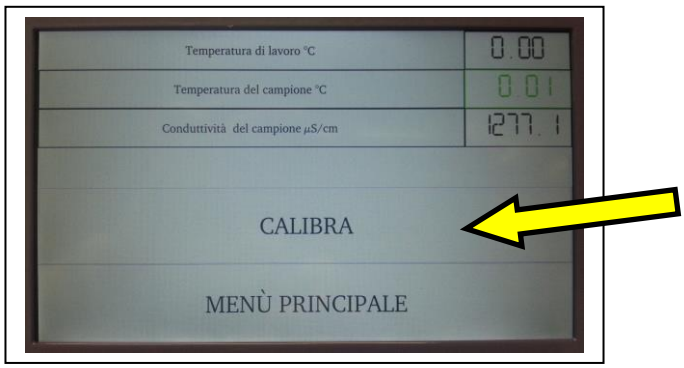
The conductivity probe needs to be calibrated periodically. Delta Acque recommends doing the calibration at least every 15 days.
To do the calibration of the probe, do as follows:

- Prepare the beaker with 100cc of calibration solution.
- Put the beaker in the bath and put the conductivity probe assembly in beaker.
- The correction factor window will appear. In this case, since the solution's correction factor is known, we do not need to do the calculation. Click "NO"
- Now we can click on the conducticity as indicated by the arrow.

- Put in the password. The factory set password is "1234". Click "Enter".

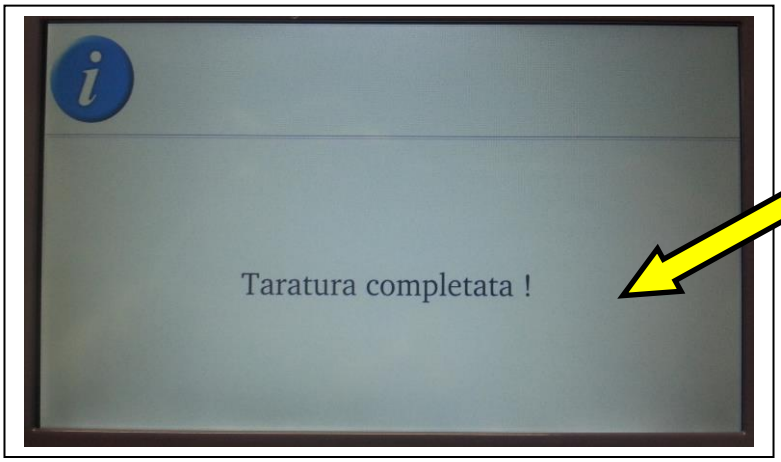


- The following windows will be open



- Click on "CALIBRA" to start the calibration. To calibrate properly, the calibration solution must reach a stable temperature between -0,5°C and + 0,5°C. If not, the software will indicate that it is not possible to calibrate. To regulate the bath temperature click on the key "WORKING TEMPERATURE" and insert a new temperature.

- Wait a few seconds, at the end of the calibration the following window opens:



Click to exit

- It is now important to take out the conductivity probe assembly and clean well the assembly with distilled water.

Use exclusively for the calibration:

Calibration Solution 1278 µS a 0°C - code D5205

Packing date in the window.

Important:

Use the solution within 12 months

The calibration solution is supplied in 0,5 litre bottles. Every bottle has a label with the date when the calibration solution was prepared.
The following paragraph describes how to make the calibration solution.

9.1 Preparation calibration solution KCL 0,01N

Prepare a conductivity solution **1278uS/c**m equivalent to a preparation of a solution **0,01N** in **KCL** keeping in mind that such a solution has the conductivity value only at **20°C**.

The solution is made as follows:

1. Dry **KCL** in an oven at **110°C** for 3 hours and let cool to room temperature in a dryer.
2. Weigh exactly **0,7455g** the **KCL** and transfer all of it in a flask of **1000ml.**
3. Dissolve the salt completely with distilled water and put it at volume.
4. Before using, stir the solution very well.

Note: The series Check Stab ® instruments are calibrated with a value of 1278,0uS at a temperature of 0,0°C, with reference temperature of the solution at 20°C. This is our standard and guarantees out standard precipitation.

10 Types of analysis to perform in relation to the type of stabilization used

In this section of the manual, thanks to our experience, we offer advice on analysis typologies that can be performed in relation to the type of stabilization used.

PRODUCTS OR METHODS UTILIZED	RED WINE ANALYSIS	WHITE WINE ANALYSIS
CMC	CMC does not work well with red wines because the anthocyanins become turbid and after precipitate out of solution.	Mini contact at -4°C for 40 minutes: <40µS = Stable >45µS = Risk / Instable
ARABIC GUMS	Mini contact at -4°C for 40 minutes, 1 hour after adding Arabic gum. Wait at least 1 hour after having added the gums to allow for a better homogenization.	Mini contact at -4°C for 40 minutes, 1 hour after adding Arabic gum. Wait at least 1 hour after having added the gums to allow for a better homogenization.
METATARTARIC	Mini contact at -4°C for 40 minutes, 1 hour after adding Metatartaric. Wait at least 1 hour after having added Metatartaric to allow for a better homogenization.	Mini contact at -4°C for 40 minutes, 1 hour after adding Metatartaric. Wait at least 1 hour after having added Metatartaric to allow for a better homogenization.
MANNOPROTEINS	Mini contact at -4°C for 40 minutes, 1 hour after adding Mannoproteins. Wait at least 1 hour after having added Mannoproteins to allow for a better homogenization. It is preferable to make a Saturation Temperature test.	Mini contact at -4°C for 40 minutes, 1 hour after adding Mannoproteins. Wait at least 1 hour after having added Mannoproteins to allow for a better homogenization. It is preferable to make a Saturation Temperature test.
RESINS	Mini contact at -4°C for 40 minutes Pay attention about the percent of wine passed through the resins, if the PH drops too much, it can cause the colour to precipitate. Wait at least 10 minutes after resin treatment before making an analysis.	Mini contact at -4°C for 40 minutes Pay attention about the percent of wine passed through the resins, if the PH drops too much (PH must be 3.10 3.20). Wait at least 10 minutes after resin treatment before making an analysis.

COLD STABILIZATION	Mini contact at -4°C for 40 minutes. Immediately filter the wine after collecting the sample from the refrigerator or cold tank. After filtrating the sample, allow it to reach room temperature and subsequently make an analysis.	Mini contact at -4°C for 40 minutes. Immediately filter the wine after collecting the sample from the refrigerator or cold tank. After filtrating the sample, allow it to reach room temperature and subsequently make an analysis.
ELECTRODIALISIS	Mini contact at -4°C for 40 minutes. The usual method used by the winery.	Mini contact at -4°C for 40 minutes. The usual method used by the winery.

11 Analysis Proceedure

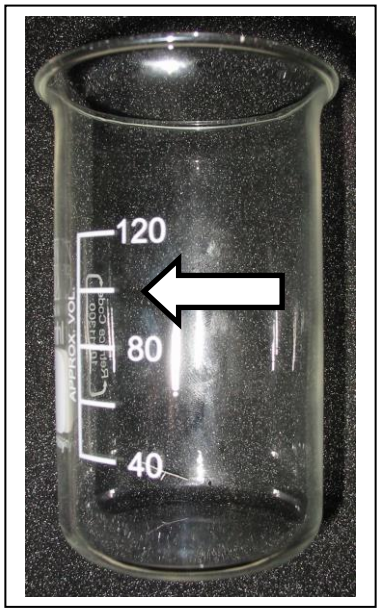
The **Check Stab α2015 iDry** can do the following analysis:

- Mini Contact Analysis.
- Long Mini Contact with forecasting.
- Saturation Point Analysis.
- Calcium analysis

Before doing an analysis, it is necessary to prepare the sample wine for the analysis:

11.1 **Preparation of sample**

The analysis requires 100mls of a sample wine. Use the beaker provided by Delta Acque and fill until the 100ml line on the beaker.



ATTENTION
USE ONLY BEKER SUPPLY BY DELTA ACQUE
CODE D5217

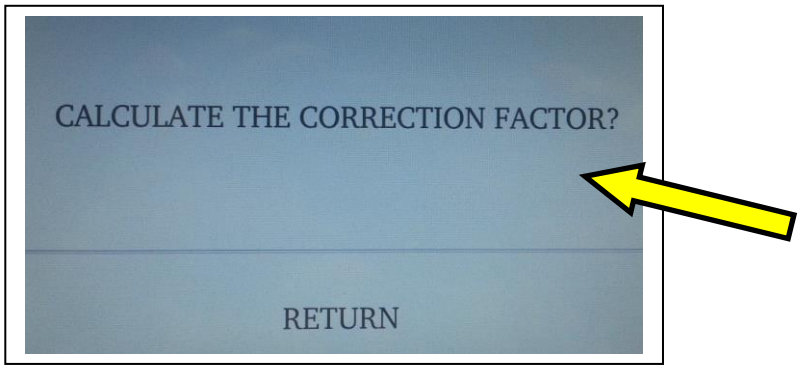
Filter this 100mls sample wine with 0,45µ membrane filter as soon as possible after receiving it in the lab. Do not allow the sample to warm unless it has already been filtered. (filtration removes the potential for re-dissolving of potassium bitartrate if present, removes solids that could interfere with the seeding material during the test, and stabilizes the sample to best represent it's condition from the source.)

Now the sample is ready to be analyzed.

11.2 **Minicontact**

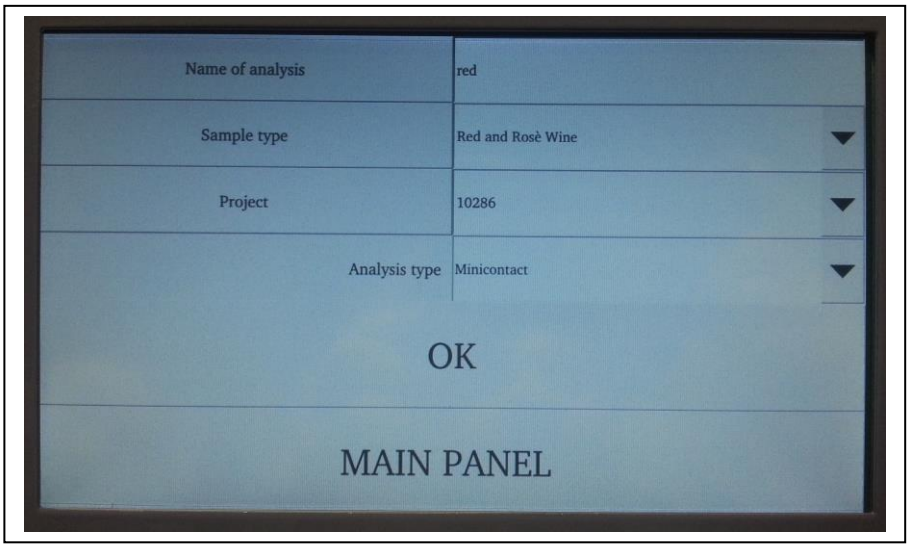
To do the mini contact analysis proceed as follows:

1. Prepare the beaker with 100cc of wine to analyze.
2. Put the beaker in the bath, moving slightly forward the automatic KHT dispenser.
3. Load the dispenser tray with KHT by using the measuring spoon supplied with the instrument:
   - 1 gram for white wines.
   - 2 grams for red wines.
4. Lift the sensor assembly with the handle, turn it and place it inside the beaker.
5. As soon as the sensor assembly has been placed in bath, a window will appear for a few seconds "Waiting Temperature Stability", and after, the following window will appear.



6. Confirm the desire to do the calculation of the correction factor by clicking "YES" and wait until the instrument gives us the value. The correction factor is the value that expresses the variation in percent of conductivity with respect the variation of temperature, such value must be between 3 and 5,5. If the resulting value is not in these parameters, it means the instrument can have a problem. If the sample wine is already at a low temperature, the instrument automatically does not do a calculation of the correction factor. It maintains the memory of the last analysis done (this is because with a wine at a low temperature, the instrument does not have to right thermal range to make a correct calculation of the factor). Delta Acque recommends that to maximize the efficiency (time) of the lab and its technicians, that the automatic correction factor accept function be flagged in the PARAMETERS section (see sections 2,2 and 2.2.6). Be sure to write in the minimum and maximum values (3 and 5.5). Once flagged, the instrument will automatically proceed through the analysis without the necessity of the user to intervene. If the parameters are below or above the minimum and maximum value, the instrument will automatically signal an anomaly.
   Warning: if the machine is not connected to the NET software at the end of the calculation of the correction factor the following window appears, and the 'operator must confirm manually.

7. After accepting the correction factor the followings windows appears:



Name of analysis

Type of wine

Name of project

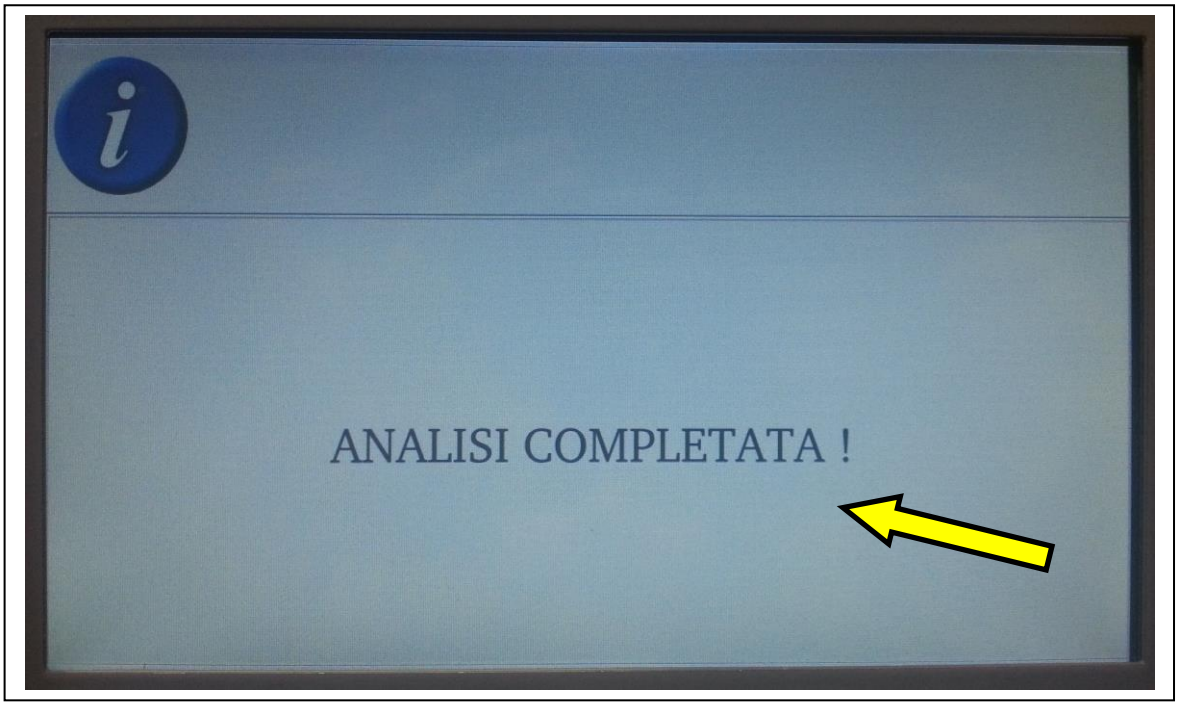
Type of analysis

Key OK to confirm

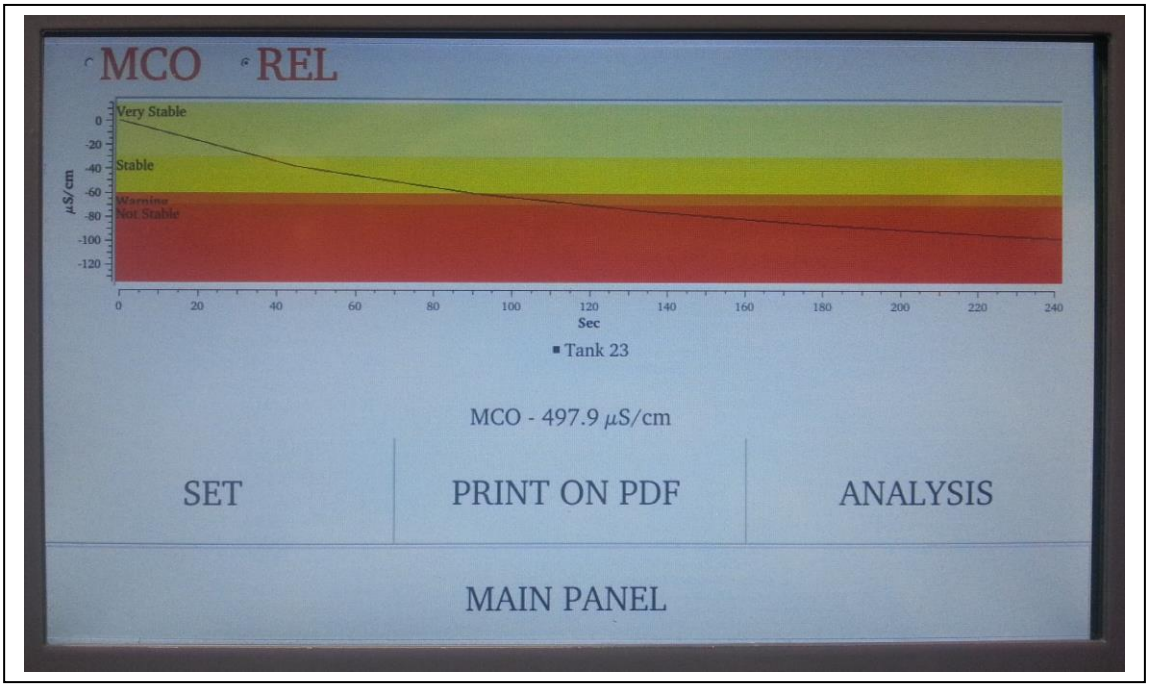
Key Main Panel to return to the previous window

8. Select the type of analysis desired, writing in a project, and the type of wine and the name of the sample being used. Click "OK" to begin. In our example above, red wine mini contact is programmed in the project 10286.
   Click on "OK" and wait that the instrument finish the analysis.

9. Al the end of the analysis appears the window below. Click as indicated by the arrow to visualize the graphic.

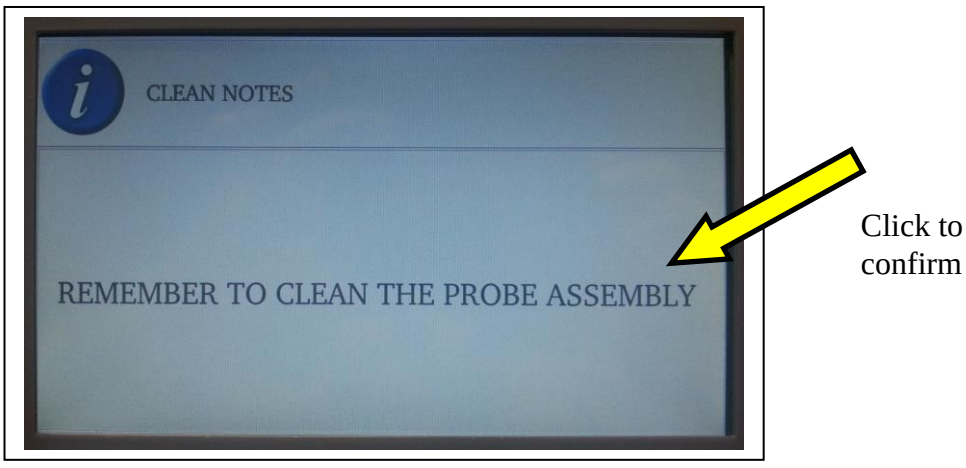


10. It opens the analysis windows and the operatore can see the graphics.
    In this case we see the graphic in relative mode. On the Y axis we find the value of µS while on the X axis we find the duration of the analysis.



11. Click on "PRINT ON PDF" to print the report stampare il report in pdf format ot to view all data relating to analyzes click "ANALYSIS".

12. Once finished, a graphic table will appear on the screen; the user must lift out the conductivity probe assembly out of the beaker, and do the cleaning procedure. The instrument will remind the user to clean the probe assembly (click on ok to take off the window). Cleaning is extremely important for the life of the conductivity probe.

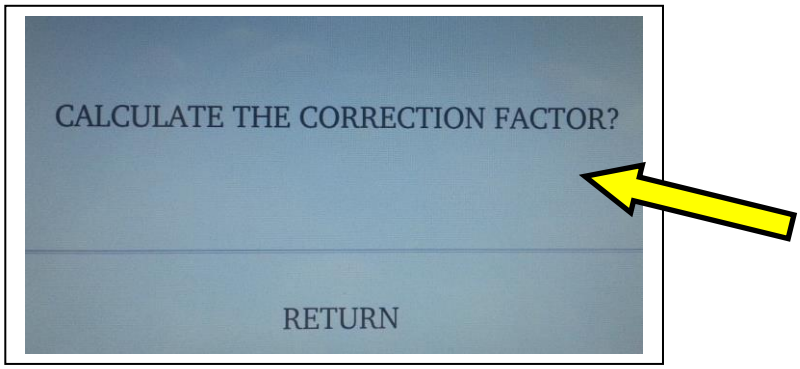


13. Take out the beaker, pushing slightly forward the automatic dispenser, and paying special attention to let the drops of residual anti freeze solution fall back in the bath. The instrument is ready to make another analysis.

11.3 **Saturation**

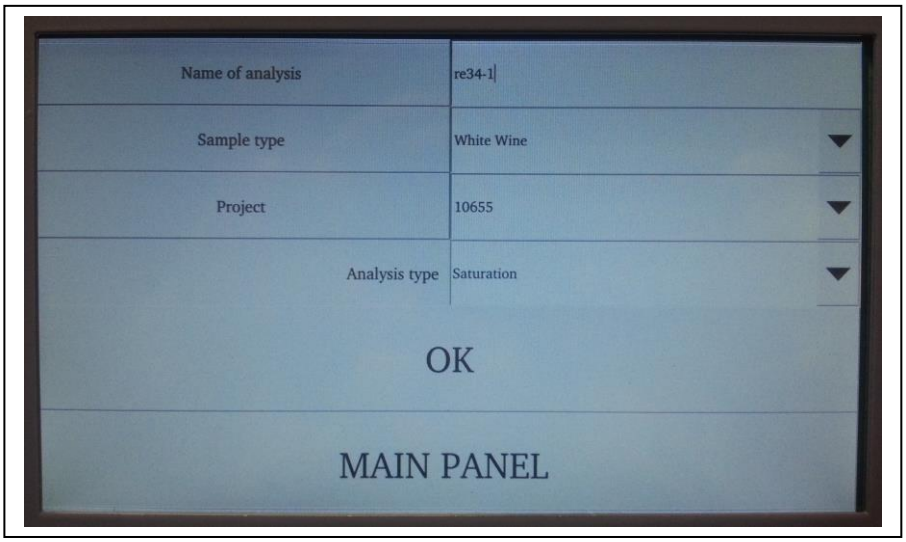
To do the saturation analysis proceed as follows:

1. Prepare the beaker with 100cc of wine to analyze.
2. Put the beaker in the bath, moving slightly forward the automatic KHT dispenser.
3. Load the dispenser tray with KHT by using the measuring spoon supplied with the instrument:
   - 1 gram for white wines.
   - 2 grams for red wines.
4. Lift the sensor assembly with the handle, turn it and place it inside the beaker.
5. As soon as the sensor assembly has been placed in bath, a window will appear for a few seconds "Waiting Temperature Stability", and after, the following window will appear.



6. Confirm the desire to do the calculation of the correction factor by clicking "YES" and wait until the instrument gives us the value. The correction factor is the value that expresses the variation in percent of conductivity with respect the variation of temperature, such value must be between 3 and 5,5. If the resulting value is not in these parameters, it means the instrument can have a problem. If the sample wine is already at a low temperature, the instrument automatically does not do a calculation of the correction factor. It maintains the memory of the last analysis done (this is because with a wine at a low temperature, the instrument does not have to right thermal range to make a correct calculation of the factor). Delta Acque recommends that to maximize the efficiency (time) of the lab and its technicians, that the automatic correction factor accept function be flagged in the PARAMETERS section (see sections 2,2 and 2.2.6). Be sure to write in the minimum and maximum values (3 and 5.5). Once flagged, the instrument will automatically proceed through the analysis without the necessity of the user to intervene. If the parameters are below or above the minimum and maximum value, the instrument will automatically signal an anomaly.
   Warning: if the machine is not connected to the NET software at the end of the calculation of the correction factor the following window appears, and the 'operator must confirm manually.

7. After accepting the correction factor the followings windows appears:



Name of analysis

Type of wine

Name of project

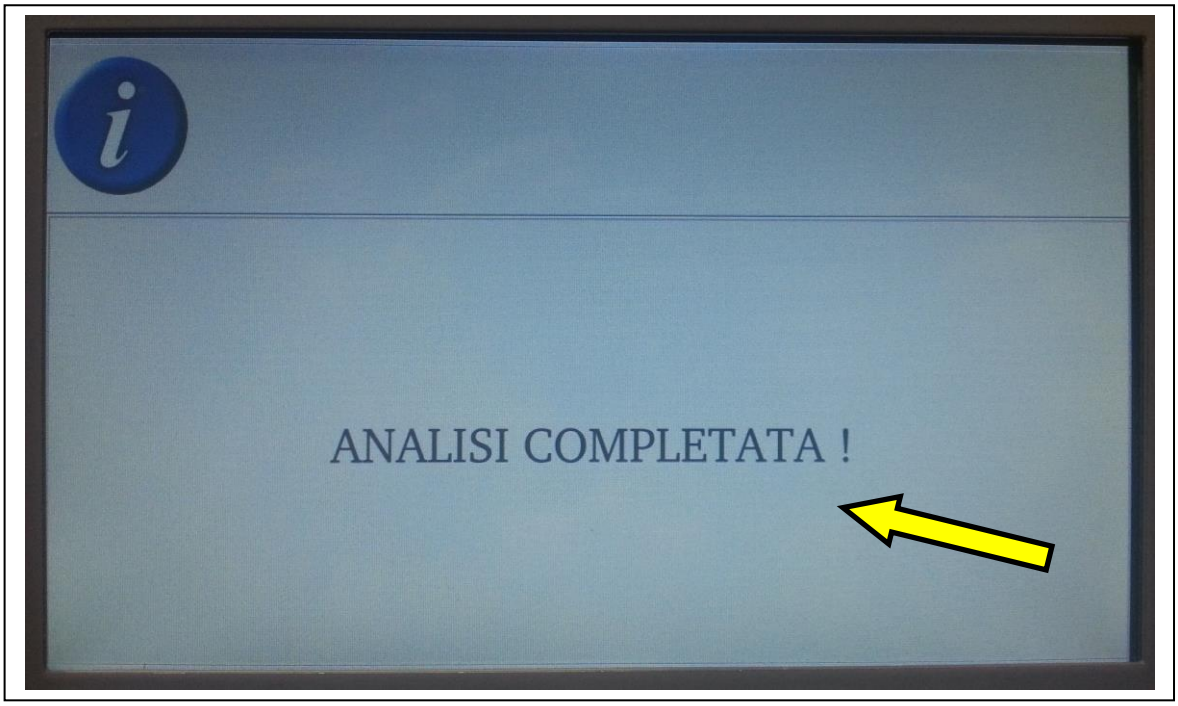
Type of analysis

Key OK to confirm

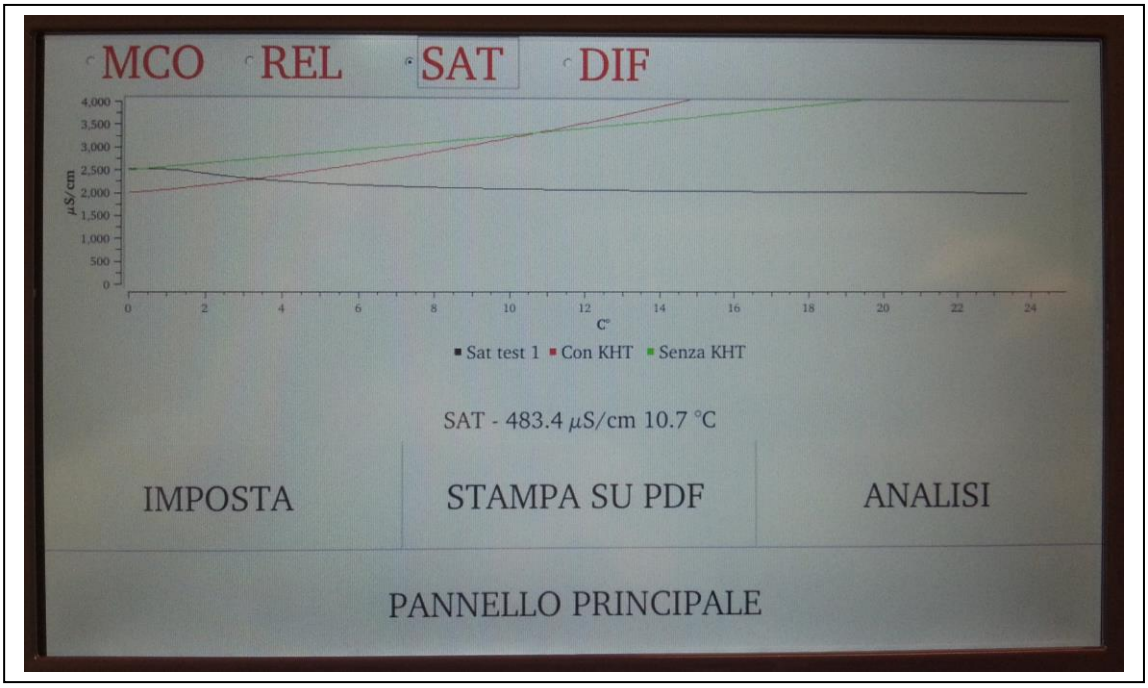
Key Main Panel to return to the previous window

8. Select the type of analysis desired, writing in a project, and the type of wine and the name of the sample being used. Click "OK" to begin. In our example above, white wine saturation is programmed in the project 10655.
   Click on "OK" and wait that the instrument finish the analysis.

9. Al the end of the analysis appears the window below. Click as indicated by the arrow to visualize the graphic.

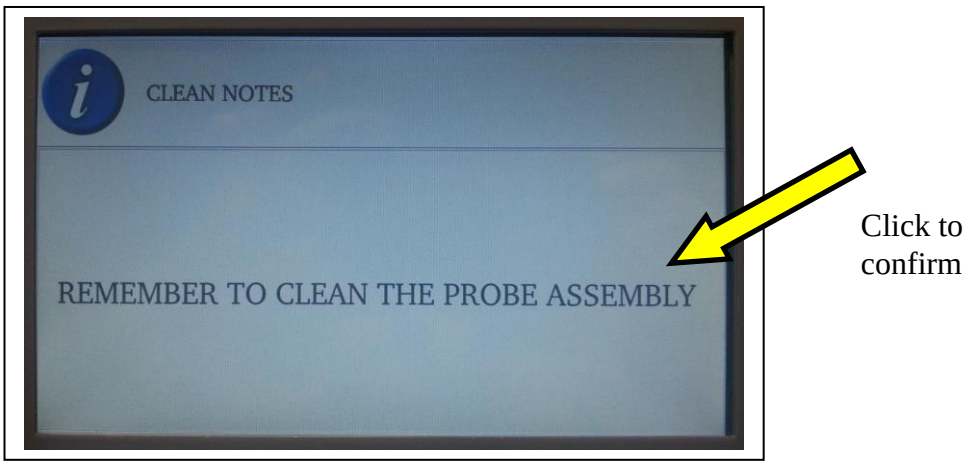


10. It opens the analysis windows and the operatore can see the graphics.
    In this case we see the graphic in relative mode. On the Y axis we find the value of µS while on the X axis we find value of °C of the analysis.



11. Click on "PRINT ON PDF" to print the report stampare il report in pdf format ot to view all data relating to analyzes click "ANALYSIS".

12. Once finished, a graphic table will appear on the screen; the user must lift out the conductivity probe assembly out of the beaker, and do the cleaning procedure. The instrument will remind the user to clean the probe assembly (click on ok to take off the window). Cleaning is extremely important for the life of the conductivity probe.



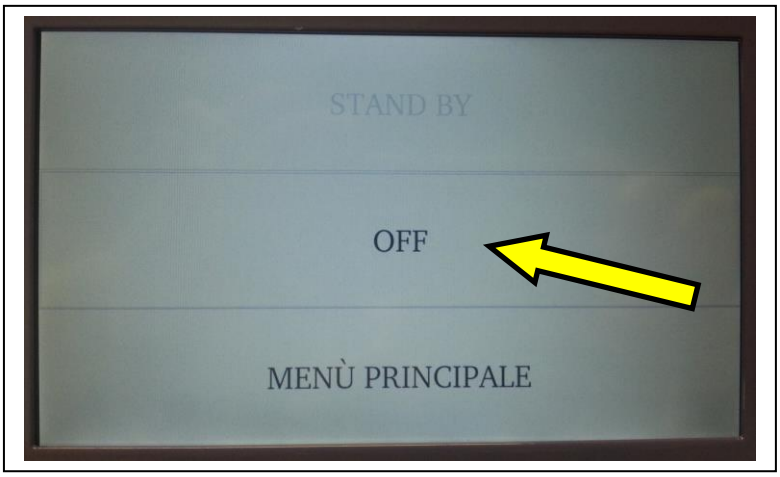
13. Take out the beaker, pushing slightly forward the automatic dispenser, and paying special attention to let the drops of residual anti freeze solution fall back in the bath. The instrument is ready to make another analysis.

12 Switching the instrument off

To switch the instrument off, do as follows:

- Click the “OFF” icon 

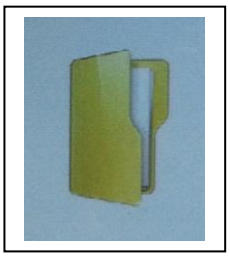
- Click the “OFF” button for switch off the instrument.



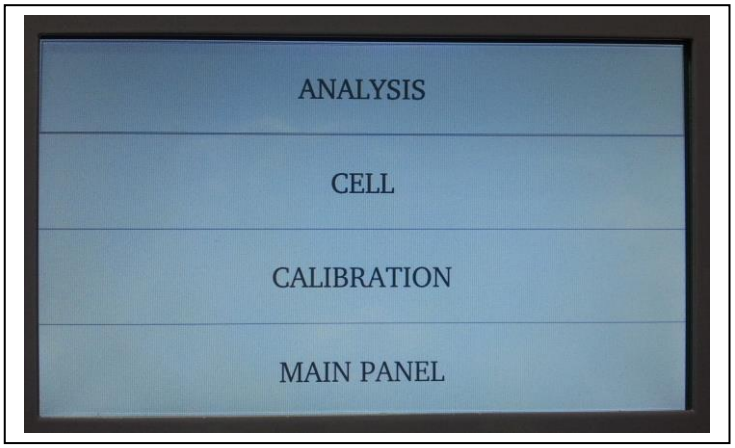
- There is a switch at the back of the instrument and this can be used to switch it off. For more information, consult the user guide Check Stab instrument.

Before switching the instrument off, take the conductivity probe assembly out of the beaker. If this is not done, the instrument will remind the user with a warning. Lift the assembly out and then click ok. Now the instrument can be switched off.

13 Projects



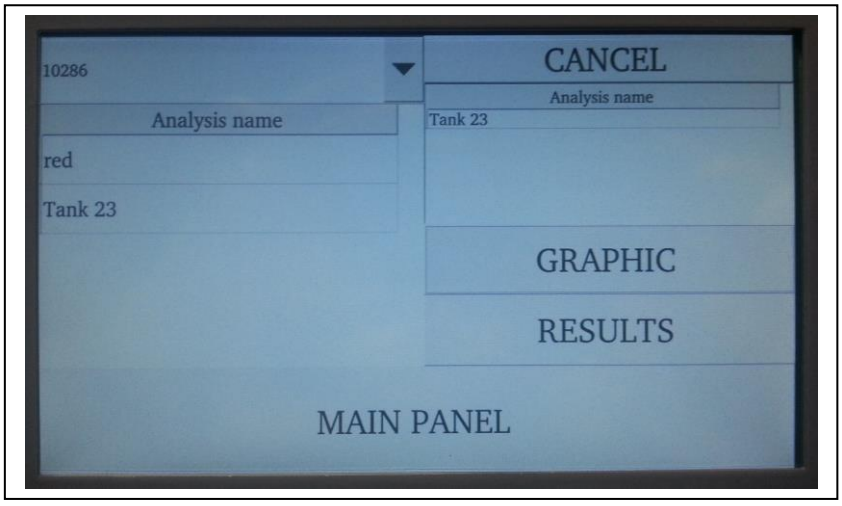
Pressing on the this icon opens the following window:



The operator can view the analysis, conductivity probes, calibration report and clicking the "MAIN PANEL" button returns to the previous screen.

13.1 **Analysis**

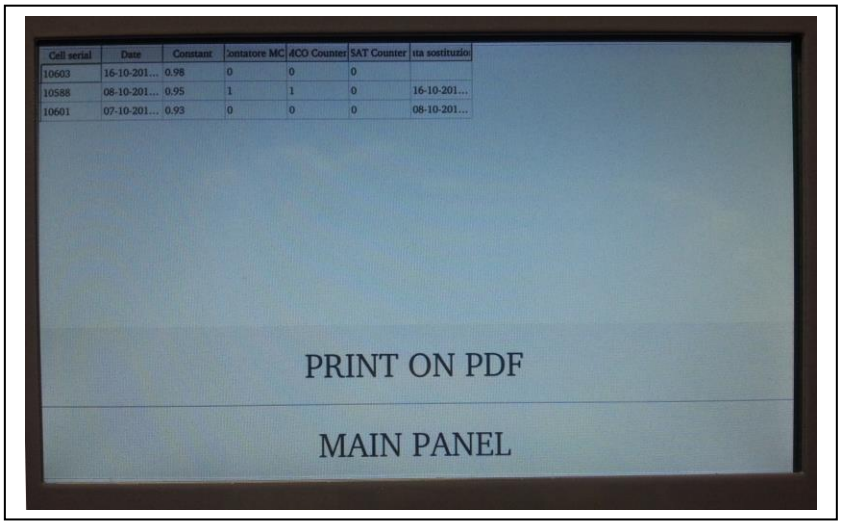
Pressing on key ANALYSIS the following windos opens:



The operator can select the project, and view the analyzes present at 'internal project. To view the chart you must click "GRAPHIC".
To view the data relating to 'analysis is necessary to click on "RESULTS".

13.2 **Cell**

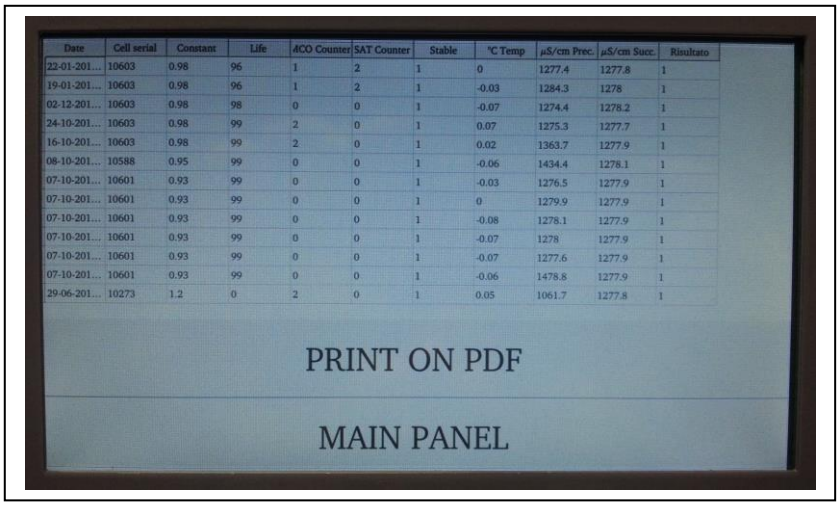
Clicking on the “Cell” button we open the following window:



The operator can view all of the conductivity probes installed on the machine, with the number and the type of analysis performed. you can also do a mail in PDF by clicking on "PRINT ON PDF". Clicking on the "MAIN PANEL" return to previous window.

13.3 **Calibration**

Clicking on the “CALIBRATION” button we open the following window:



The operator can view all calibrations performed on the conductivity sensors installed on the machine, with the temperature and the conductivity value. you can also do a mail in PDF by clicking on "PRINT ON PDF".

By clicking "" MAIN PANEL "to return to the previous screen.

14 Cleaning and Demolition

14.1 **Cleaning the instrument**

Disconnect the instrument from the power supply (230Vca 50/60 Hz. or other voltages by special request), clean with a damp cloth moistened by a common solvent. Wait until the instrument is dry before reconnecting it to the power supply.
The conductivity sensor must stay in perfect condition. It is important to clean it properly

1. Move the sensor up and out of the hole in the case
2. Put a little container under the sensor to catch the distilled water dripping off the sensor
3. Clean with distilled water all the parts of the sensor
4. Wait until the sensor is dry

DON'T use cleaning agents or objects which could damage the platinum electrodes.

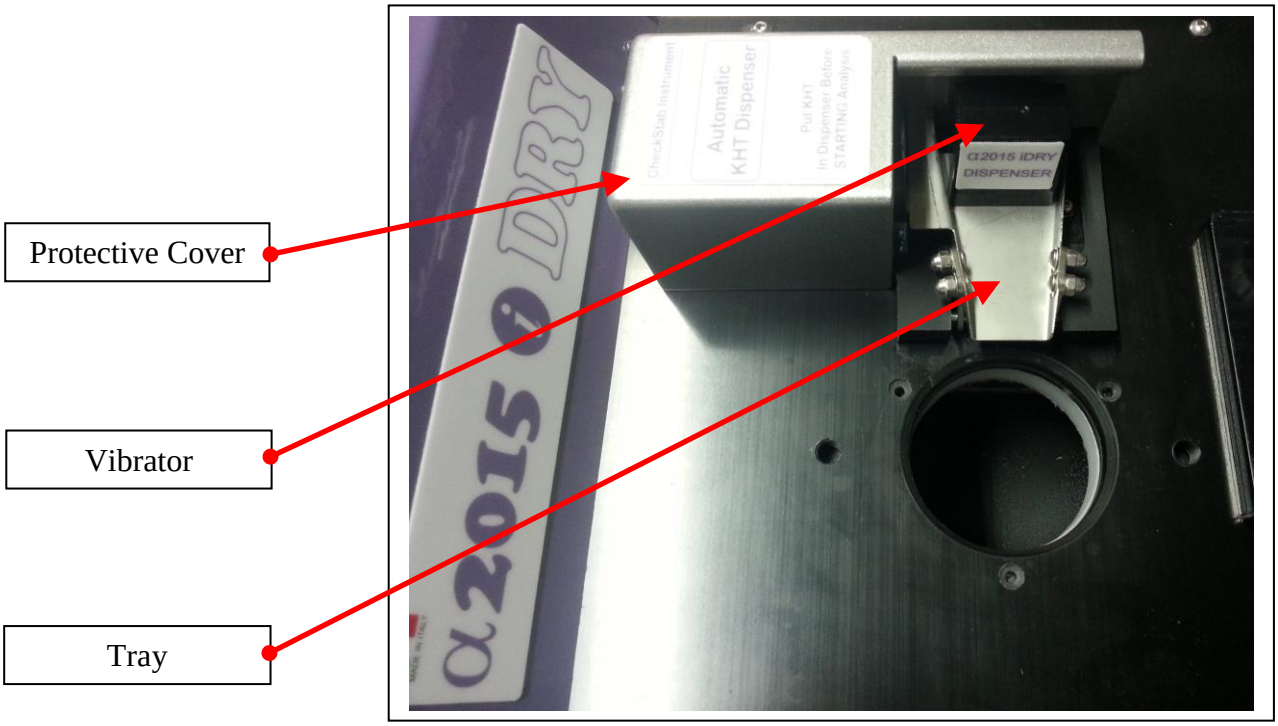
14.2 **Special Cleaning Procedures**

Disconnect the instrument from the power supply (230Vca 50/60 Hz. or other voltages by special request), clean with a damp cloth moistened by a common solvent. Wait until the instrument is dry before reconnecting it to the power supply.
In addition, it is advisable to clean the thermostatic bath once per year To clean the bath, take off the black PVC cover and having completely emptied the bath of antifreeze, clean with hot water Once completed, put the cover back on and lock down with the screws.
To clean the conductivity sensor, follow the instructions that follow. This is important to preserve the optimal condition of the sensor
Clean well with distilled water after each analysis. Every so often, clean the sensor in special manner as described below:

1. Fill a beaker 150ml with a cleaning solution (3% hypochlorite solution)
2. Put the sensor assembly in the beaker and let the mixer turn for about 30 seconds. The mixer will stop turning after a few seconds.
3. Take the sensor assembly out of the beaker and clean with distilled water. The sensor has two small holes at the bottom, It is important to squirt water through the little holes to be sure to clean the electrodes well.
4. Repeat point 2 if the sensor does not appear clean and rinse again with distilled water.

ATTENTION: NEVER USE OBJECTS OR TOOLS THAT CAN DAMAGE THE PLATINATURE OF THE ELECTRODES.

It is very important to clean the automatic KHT dispenser from time to time. Check Stab recommends that at the end of each day, the user remove residual powder left on the KHT tray. Use a soft brush to clean. Keep the tray dry, as it is possible that humidity coming from the bath can make the tray damp, causing the accumulation of excess powder.



Automatic KHT dispemser

We recommend cleaning the automatic dispenser thoroughly at the end of each working day. We also recommend using low pressure compressed air to thoroughly clean the dispenser area from excess KHT powder. **Delta Acque can provide a compressed air bottle for this use**.

14.3 **Demolition**

Instruments that cannot be repaired must be demolished by the appropriate legal organizations.

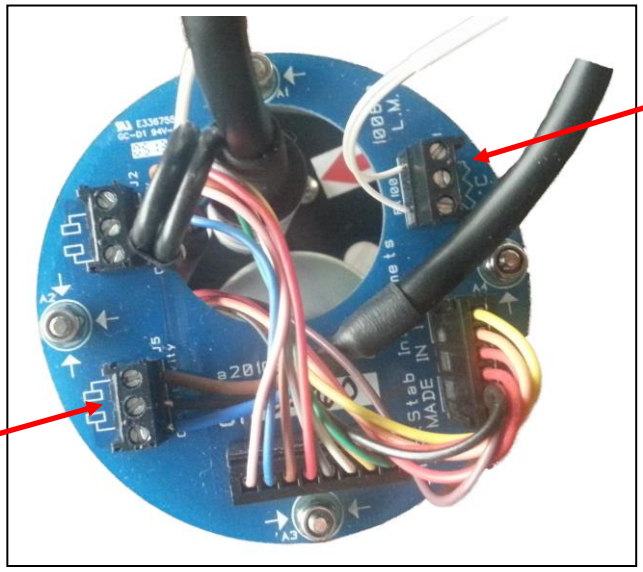
15 Replacements

The instrument does not need particular interventions. Eventual replacements of the sensor PT100 and the conductivity sensor can be done without the intervention of technicians from Delta Acque. As previously mentioned, the conductivity sensor has a life span of approximately 1000-1500 analysis (if correctly cleaned at the end of each analysis). It is advisable to calibrate at least once per month. The sensor PT100 should be verified once per year with another certified thermometer. In this way we are sure that the sensors are correctly functioning. In case there is a problem, it needs to be replaced.
Below are indications for the replacement of the sensors.

15.1 **Replacing the sensor from the sensor assembly**

The Sensor assembly has both the sensorPT100 for temperature and the conductivity sensor.
Follows is how to replace the sensors. The conductivity sensor should be replaced after a maximum of 1500 analysis.
After checking that the power switch is OFF, the machine is off, and the sensor assembly is in a non working position, do as follows:

- Unscrew the 3 screws "A" that hold the protective casing
- Take off the protective casing pulling upwards.

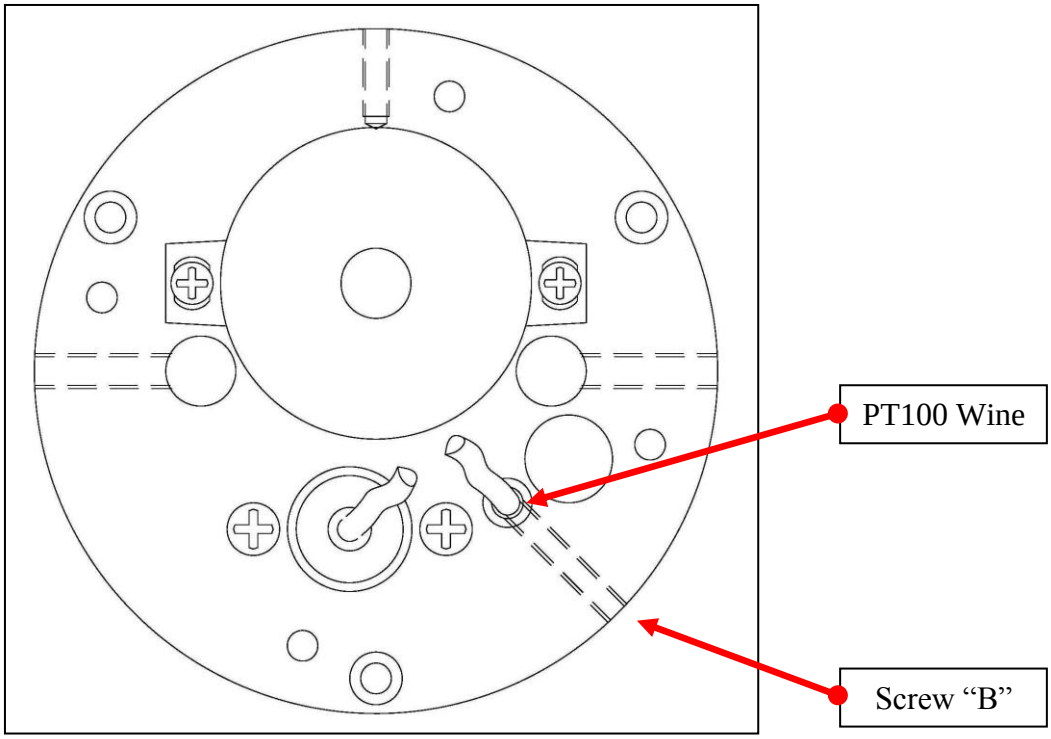


- Once the casing is removed we see the electric board. The cable of the sensor is connected to the connectors. In figure "Replace sensor" the sensor PT100 is shown and the conductivity sensor in the order in which they are connected.
- Disconnect the cables of the sensor to be replaced by loosening the screws at the connector.
- Now we can replace the sensor.

The sensors are fixed to a plate in black PVC under the board. Once the cables have been disconnected, proceed with the replacement of the sensors (Connector view).

To replace temperature sensor PT100:

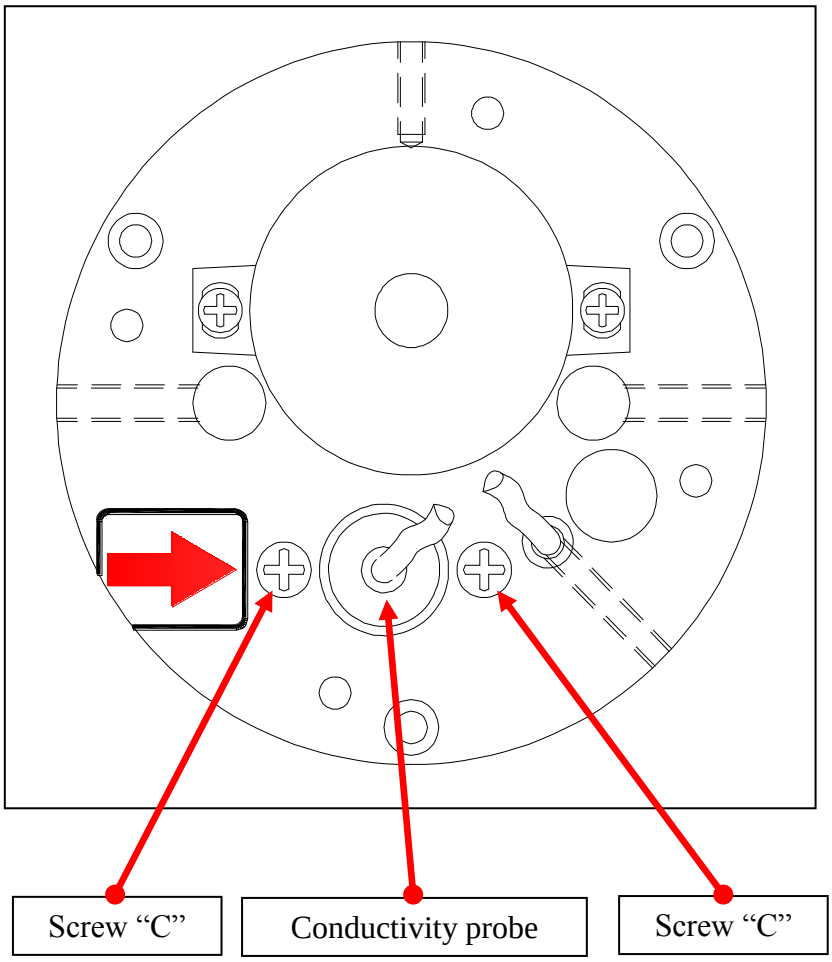
- Loosen the screw “B” using an Allen key.
- Pull out the sensor and replace.
- The sensor supplied by Delta Acque has the cables already measured. After positioning it, tighten the screws that were previously loosened.
- Connect the cables in order as shown in figure “Replace sensor”



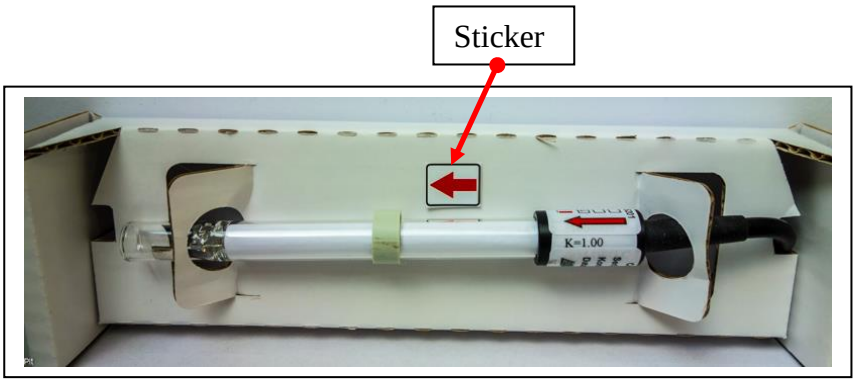
To replace the conductivity sensor:

After disconnecting the cables do as follows:

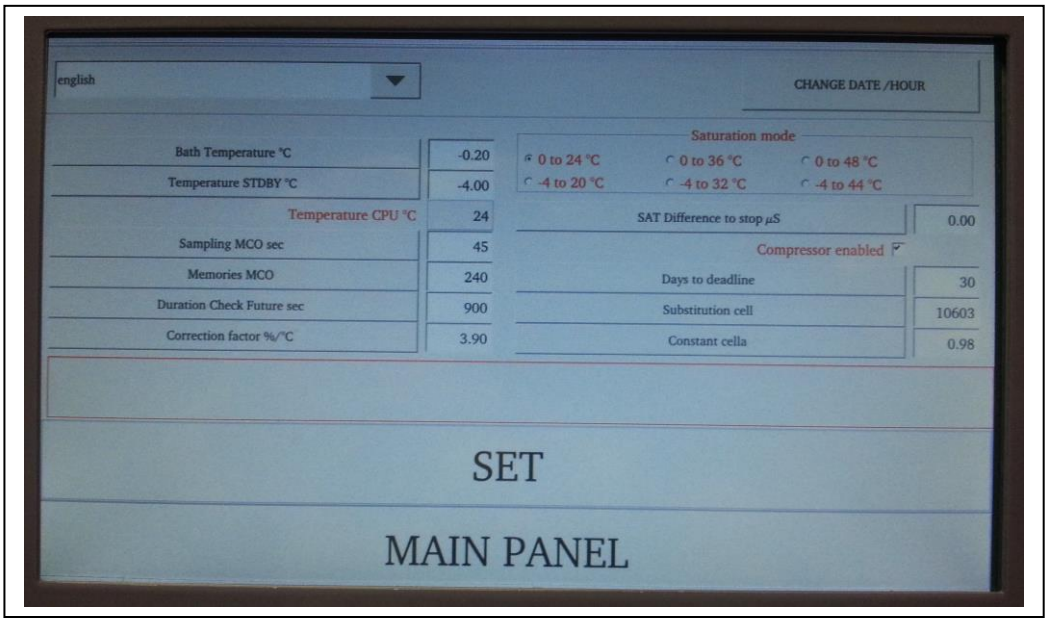
- Loosen the 2 screws "C" being careful not to let the plastic PVC bushing fall. This bushing is located under the instrument's surface plate. Inside the bushing, there is an O ring gasket necessary to protect the sensor.
- Pull out the sensor and replace it with a new one.
- The sensor supplied by Delta Acque has the cables already measured. After positioning it, tighten the screws that were previously loosened.
- Connect the cables to the connector in the proper order as shown in figure "connector view" and record the data of the new conductivity sensor in the software, cell history.



The probe is supplied with Sticher and spacer fixing. See next picture.

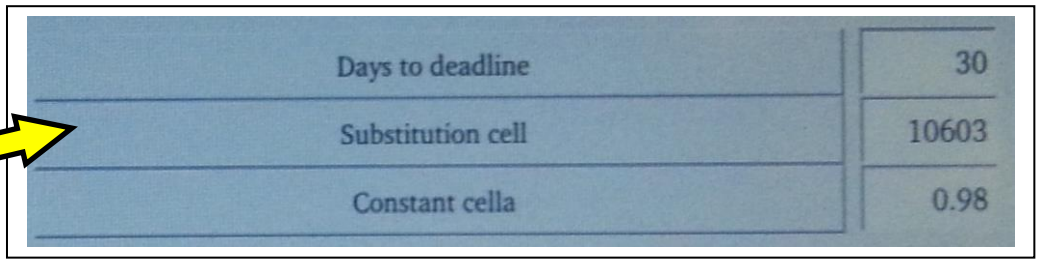


- To register a new sensor click parameters icon  .
- The new conductivity cell must be recorded. The information is found in the window “PARAMETERS”. These fuctions are protected by a password. Below is view of Parameter window.



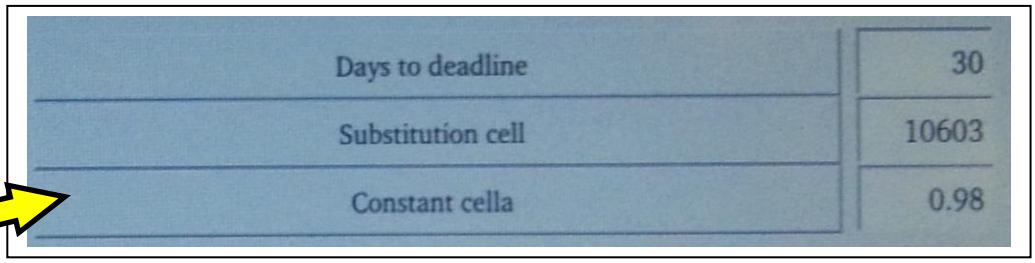
- Insert the new serial number of the cell by clicking on “Substitution Cell” as in the figure below:

Click here



- Insert the Cell Constant of the new cell by clicking on “Cell Constant” Cell constant as indicated in the figure below:

Click here



- The unit remembers to calibrate the new probe. Confirm and do a calibration of the probe.

16 Shipment of instrument by forwarding agent

Instructions for the correct shipment of a check stab instrument.

After disconnecting the power cables and the serial cable that connects the instrument to a PC:

- Empty well the anti freeze bath by opening the tap located at the back of the instrument checking visually that the bath is empty.
- Close the tap.
- Protect the sensor assembly with a nylon bag
- Insert the sensor assembly inside the hole of the bath and put a protective paper (cardboard) between the sensor assembly casing and the fixed casing on the instrument such that they do not make direct contact.
- Box the instrument in a **wooden** case of appropriate size.
- At the side, put in a bag all the accessories and then put the sack in the wooden case. The accessories should be the following:
    - Feed cable 220V 50Hz.(or other tension onr request)
    - A bottle by 100 gr. of BTK
    - Doses spoon 1gr. / 2Gr. For BTK
    - Calibration solution 1278.0 µS.
    - Cleaning solution
    - Beker Schoot /Duran 150ml
    - Sprinkler for cleaning 500ml
    - Bucket for cleaning
    - Rubber tube for “Condensate drain” - 10x14 1,5 mt.
    - Cork for cooling chamber
    - Kit fusible 5x20 Amp.
    - User guide Manual
    - User guide software
    - Check Stab NET software (CD)
    - Cable LAN 1,5 mt.
    - Hub LAN multi-imput (only for slave machine)

- Pack well, close the wooden case and put on the address of :

DELTA ACQUE del Dr. A. Cavallucci
Via della Treccia, 37 - 50145 FIRENZE

NB: IMPORTANT FOLLOW INSTRUCTION FOR PACKING TO AVOID DAMAGE DURING TRANSPORT