

# Hardware User's Manual

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## Plethysmometer



### References:

LE7500 (76-0220), LE7504 (76-0221), LE7503 (76-0223), LE7505 (76-0222)

### Version:

V29/10/2014

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#### Limitation of Liability

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


Some symbols may have more than one interpretation by professionals unaccustomed to their usage.

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## 1. SYMBOLS TABLE

Recognising the symbols used in the manual will help to understand their meaning:

DESCRIPTION	SYMBOL
Warning about operations that must not be done because they can damage the equipment	
Warning about operations that must be done, otherwise the user can be exposed to a hazard.	
Protection terminal ground connection.	
Warning about a hot surface which temperature may exceed 65°C	
Warning about a metal surface that can supply electrical shock when it's touched.	
Decontamination of equipments prior to disposal at the end of their operative life	
Waste Electrical and Electronic Equipment Directive (WEEE)	

## 2. GOOD LABORATORY PRACTICE

Check all units periodically and after periods of storage to ensure they are still fit for purpose. Investigate all failures which may indicate a need for service or repair.

Good laboratory practice recommends that the unit be periodically serviced to ensure the unit is suitable for purpose. You must follow preventive maintenance instructions. In case equipment has to be serviced you can arrange this through your distributor. Prior to Inspection, Servicing, Repair or Return of Laboratory Equipment the unit must be cleaned and decontaminated.



### Decontamination prior to equipment disposal

In use this product may have been in contact with bio hazardous materials and might therefore carry infectious material. Before disposal the unit and accessories should all be thoroughly decontaminated according to your local environmental safety laws.

### 3. UNPACKING AND EQUIPMENT INSTALATION

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**WARNING:** Failure to follow the instructions in this section may cause equipment faults or injury to the user.


- A. No special equipment is required for lifting but you should consult your local regulations for safe handling and lifting of the equipment.
- B. Inspect the instrument for any signs of damage caused during transit. If any damage is discovered, do not use the instrument and report the problem to your supplier.
- C. Ensure all transport locks are removed before use. The original packing has been especially designed to protect the instrument during transportation. It is therefore recommended to keep the original carton with its foam parts and accessories box for re-use in case of future shipments. Warranty claims are void if improper packing results in damage during transport.
- D. Place the equipment on a flat surface and leave at least 10 cm of free space between the rear panel of the device and the wall. Never place the equipment in zones with vibration or direct sunlight.
- E. Once the equipment is installed in the final place, the main power switch must be easily accessible.
- F. Only use power cords that have been supplied with the equipment. In case that you have to replace them, the spare ones must have the same specs that the original ones.



- G. Make sure that the AC voltage in the electrical network is the same as the voltage selected in the equipment. **Never connect the equipment to a power outlet with voltage outside these limits.**



**WARNING**

For electrical safety reasons you only can connect equipment to power outlets provided with earth connections .

This equipment can be used in installations with category II over-voltage according to the General Safety Rules.

The manufacturer accepts no responsibility for improper use of the equipment or the consequences of use other than that for which it has been designed.

### PC Control



Some of these instruments are designed to be controlled from a PC. To preserve the integrity of the equipment it is essential that the attached PC itself conforms to basic safety and EMC standards and is set up in accordance with the manufacturers' instructions. If in doubt consult the information that came with your PC. In common with all computer operation the following safety precautions are advised.

- WARNING**
- To reduce the chance of eye strain, set up the PC display with the correct viewing position, free from glare and with appropriate brightness and contrast settings
  - To reduce the chance of physical strain, set up the PC display, keyboard and mouse with correct ergonomic positioning, according to your local safety guidelines.

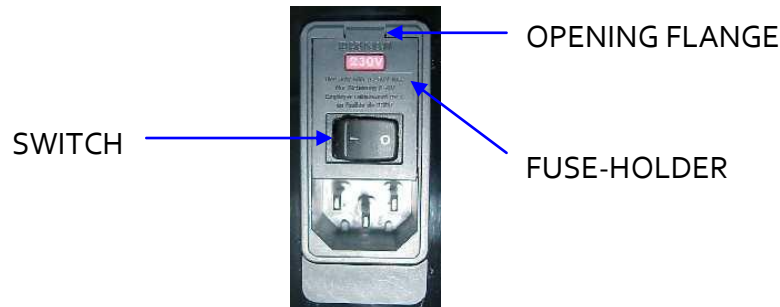
## 4. MAINTENANCE

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**WARNING:** Failure to follow the instructions in this section may cause equipment fault.

- **PRESS KEYS SOFTLY** – Lightly pressing the keys is sufficient to activate them.
- Equipments do not require being disinfected, but cleaned for removing urine, faeces and odour. To do so, we recommend using a wet cloth or paper with soap (which has no strong odour). **NEVER USE ABRASIVE PRODUCTS OR DISSOLVENTS.**
- **NEVER** pour water or liquids on the equipment.
- Once you have finished using the equipment turn it off with the main switch. Clean and check the equipment so that it is in optimal condition for its next use.
- The user is only authorised to replace fuses with the specified type when necessary.



**Figure 1.** Power inlet, main switch and fuse holder.

### FUSE REPLACEMENT OR VOLTAGE SETTING CHANGE

In case of an over-voltage or other incident in the AC net making it impossible to turn on the equipment, or if the equipment voltage setting is incorrect, check fuses according to the following procedure.

- 1 Remove power cord from the power inlet.

- 2 Open fuse-holder by pulling the flange with a regular screwdriver.

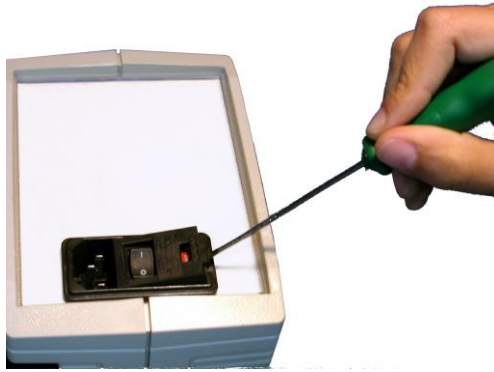


Figure 2. Open fuse-holder door.

- 3 Extract fuse holder using the screwdriver.

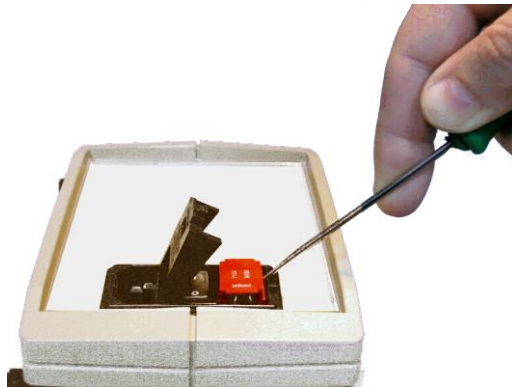
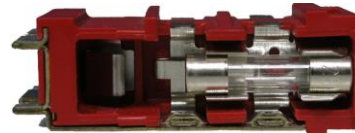


Figure 3. Extract fuse-holder.

- 4 Replace fuses if necessary. Insert fuses in the fuse-holder in the correct position.



CORRECT



INCORRECT

Figure 4. Fuses position.

- 5 Insert the fuse-holder again, positioning it according to the voltage in the AC net.



115V POSITON



230V POSITION

Figure 5 Fuse holder position.

- 6 If the fuses blow again, unplug the equipment and contact technical service.



WARNING

For electrical safety reasons, never open the equipment. The power supply has dangerous voltage levels.

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## 6. INTRODUCTION

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The LE 7500 Digital Plethysmometer is an instrument used to determine variations in the volume of rodent limbs. It measures the variation in fluid level when the limb is inserted into a tank.

The introduction of a tissue (or any object) into the container changes the level of fluid and the conductivity between two platinum electrodes previously introduced into the container. This change is expressed in millilitres with a resolution of 0.01 ml.



Figure 6. LE 7500 Digital Plethysmometer.

## 7. EQUIPMENT DESCRIPTION

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### 7.1. SENSOR UNIT

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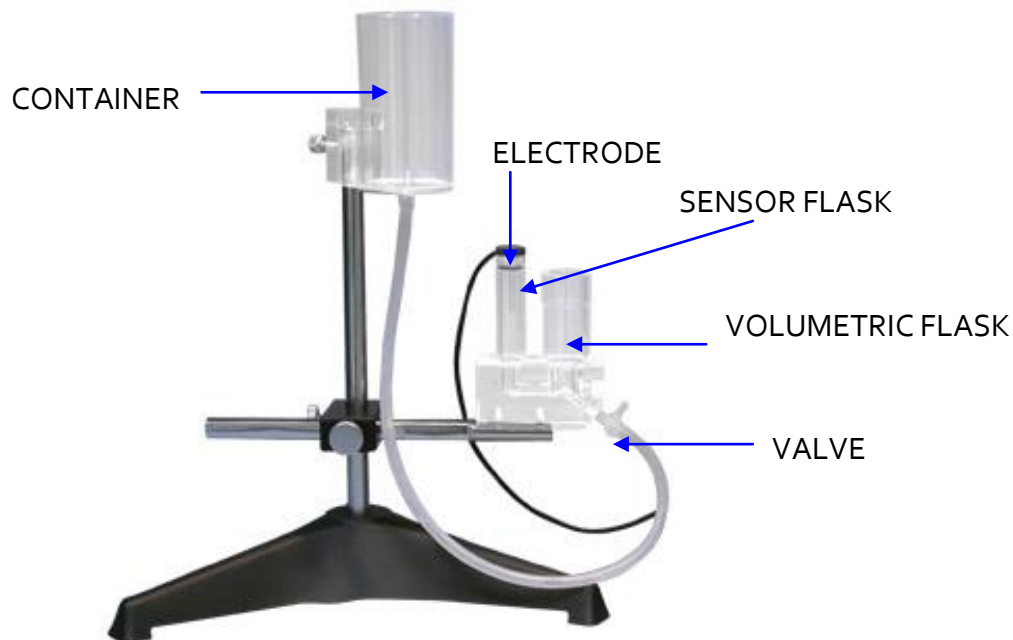


Figure 7. Sensor unit.

- **CONTAINER:** Container which holds the maximum volume of solution, designed to fill the other two (for this reason it is placed in a higher position, as the other containers are filled by gravity).
- **VOLUMETRIC FLASK:** Container into which the tissues are placed. It is connected to the SENSOR FLASK. It has a mark at the top to help determine the maximum level of solution.
- **VALVE:** This controls the amount of liquid entering the VOLUMETRIC FLASK and SENSOR FLASK.
- **SENSOR FLASK:** This is where the displaced volume of solution is calculated. It holds the two platinum electrodes that record the changes in conductivity, which indicate the exact volume of the tissues.

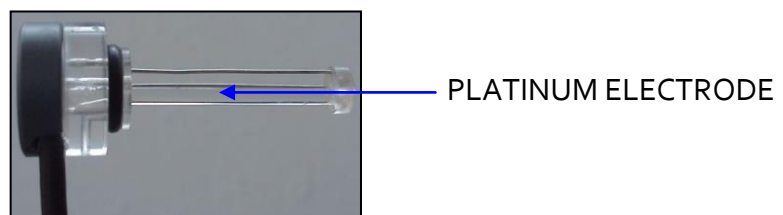


Figure 8. Platinum Electrode.

## 7.2. CONTROL UNIT FRONT PANEL

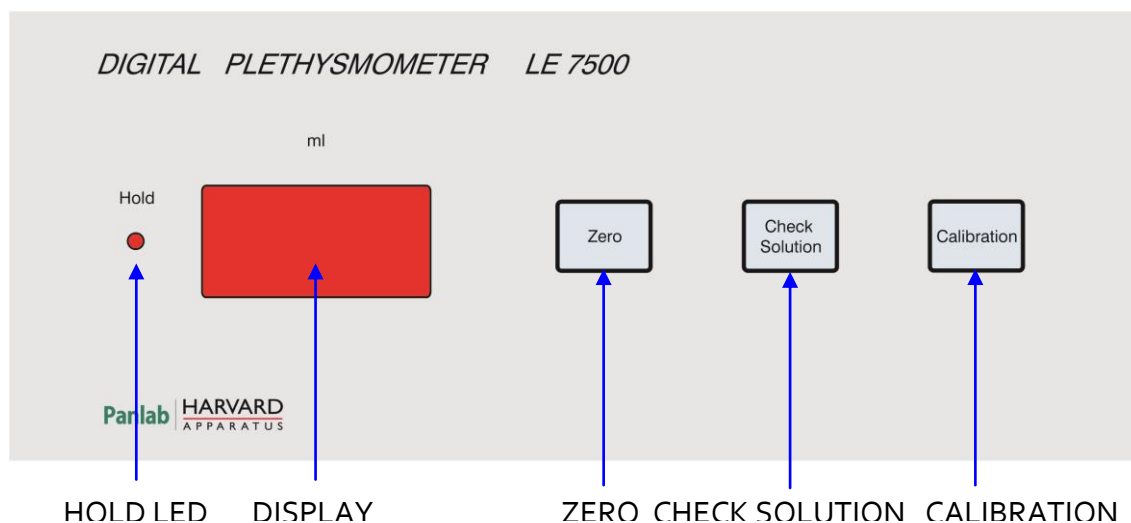


Figure 9. Front Panel.

- **HOLD:** This LED indicates that the information on the DISPLAY is set. Press the PEDAL to block/unblock it. Moreover, on pressing the PEDAL the information is sent to the PC via the RS-232 serial line connected to the rear panel.
- **DISPLAY:** This indicates the value of the volume measured in ml, and the solution's salinity level as a percentage.
- **ZERO:** On pressing and releasing this button the DISPLAY is reset and the initial level of liquid is set on the apparatus. The device performs this function automatically on removing the measured volume from the VOLUMETRIC FLASK.
- **CHECK SOLUTION:** This is to check that the solution is correct. The device measures the level of salinity of the solution and expresses it as a percentage. The correct margins are between 40 and 160. Levels below 40 indicate that the solution must be more concentrated (more NaCl). Levels above 160 indicate that the solution must be diluted (less NaCl). The ideal value is 100. To measure salinity, fill the VOLUMETRIC FLASK with liquid up to the reference mark and hold down the button. If it is pressed briefly the value will be displayed for 1 second. If the solution is incorrect the DISPLAY will also show "ErrS".
- **CALIBRATION:** This makes possible to indicate to the instrument that the increase in volume produced by a known volume (3.00 ml) corresponds to 3.00 ml (optionally, it can be calibrated to 1.00 ml or 5.00 ml, using special FLASKS and calibres) and thus adjust its internal gain. This prevents errors caused by changes in salinity and changes in the initial fluid level.

### 7.3. CONTROL UNIT REAR PANEL

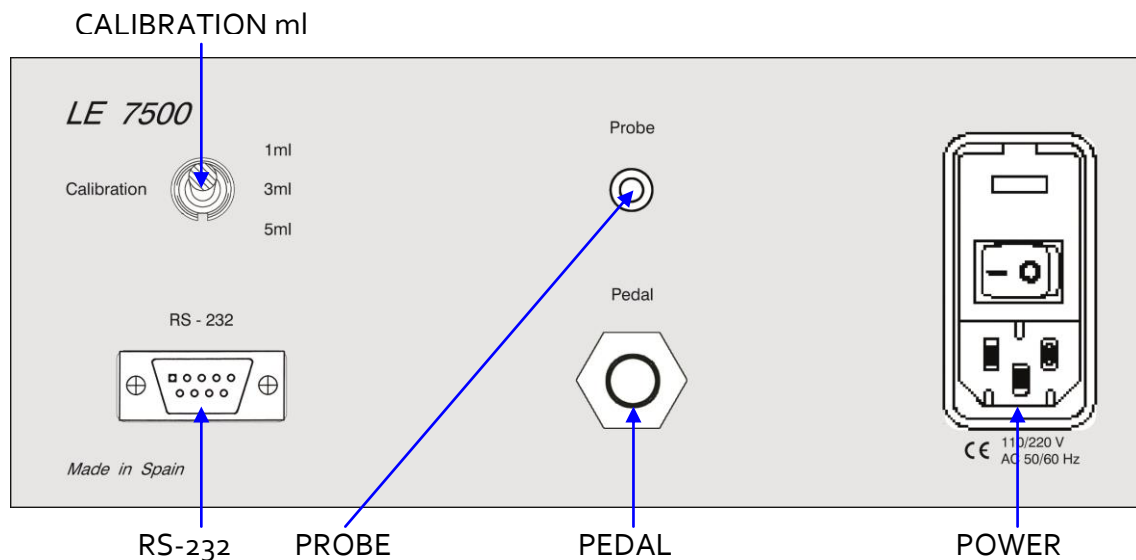


Figure 10. Rear panel.

- **RS-232:** 9-pin serial connector that allows the user to connect the CONTROL UNIT to an external device (PC) to process and work with the data obtained through the **Sedacom** software (not included, should be purchased separately).
- **PROBE:** Connector to which the lead of the PROBE of the SENSOR UNIT is attached.
- **PEDAL:** The PEDAL is connected to the CONTROL UNIT to set the DISPLAY value and send data to the PC.
- **POWER:** The mains lead is connected here. It also contains the main switch and the fuse holder.
- **CALIBRATION ml:** This switch is used to select the volume of the volumetric flask that we will use. For 1 ml flask select position 1. For 3 ml flask select position 3, and for 5 ml flask select position 5. Each type of volumetric flask has to be calibrated with its own known volume.

## 8. WORKING WITH THE EQUIPMENT

### 8.1. EQUIPMENT CONNECTION

The system connection is shown in the following figure.

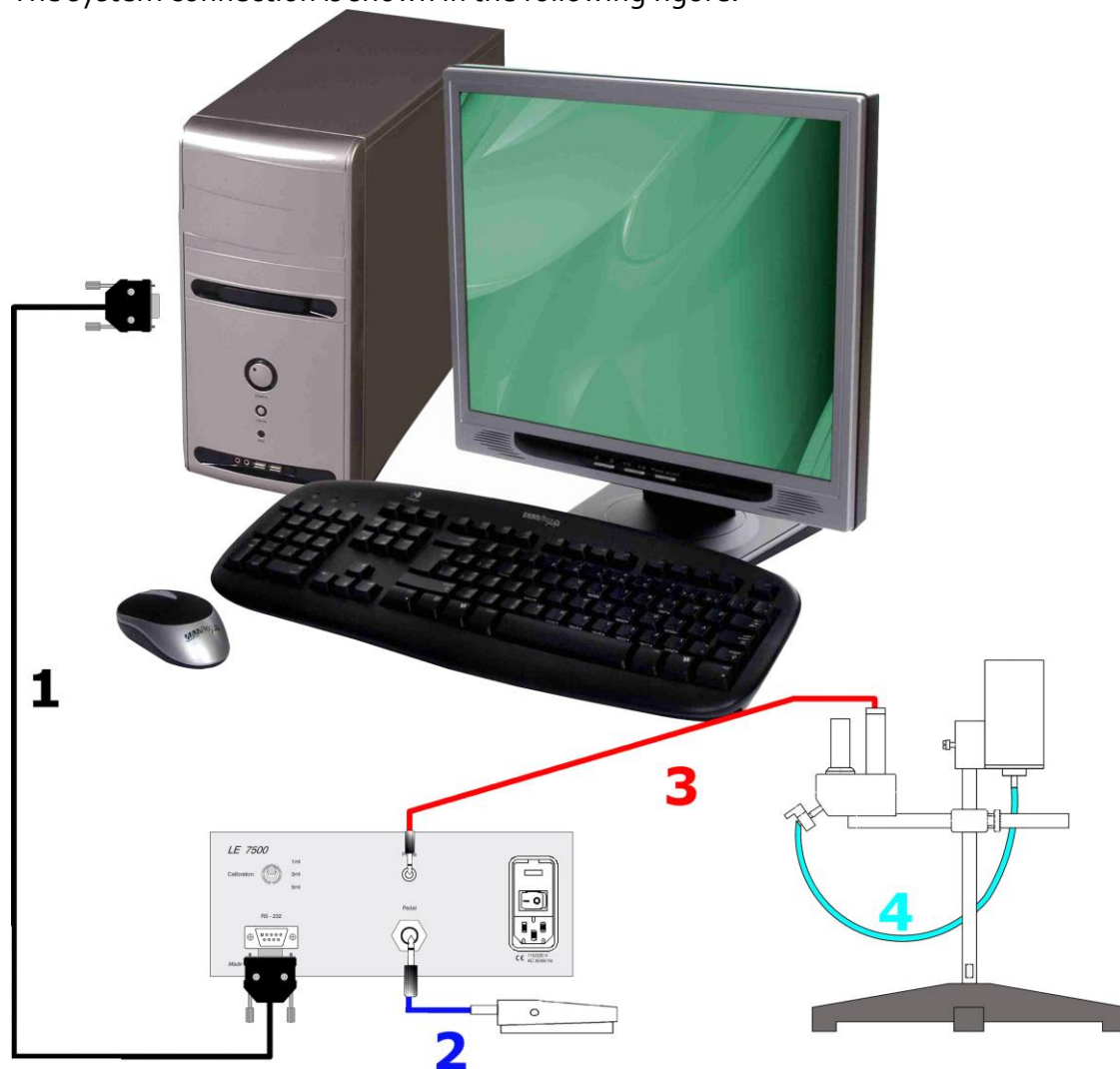


Figure 11. Equipment connection.

Cables and connections are listed in the following table

	FROM	TO	CABLE
1	PC serial port	LE7500 RS-232	RS232 Cable
2	LE 7500 Pedal	Foot switch	Jack 6.35 mm
3	LE7500 Probe	Platinum electrode	Jack 3.5 mm
4	Reservoir	Flask	Silicone pipe*

\* Hydraulic connection

## 8.2. PREPARING THE SOLUTION

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The solution will have a 0.2% weight/volume concentration of NaCl. In other words, 2 g of NaCl per litre of NON-deionised distilled water. Add 15 drops of TRITON per litre of solution (this is to keep the water from forming a concave meniscus on the flask walls through surface tension).

## 8.3. CHECK SOLUTION SALINITY

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- 1) Connect the equipment as shown in Figure 11.
- 2) Fill the CONTAINER with the salt solution prepared as described in section 8.2.
- 3) Open the valve to fill the volumetric and sensor flasks. You must fill both flasks until the saline solution reaches the mark.

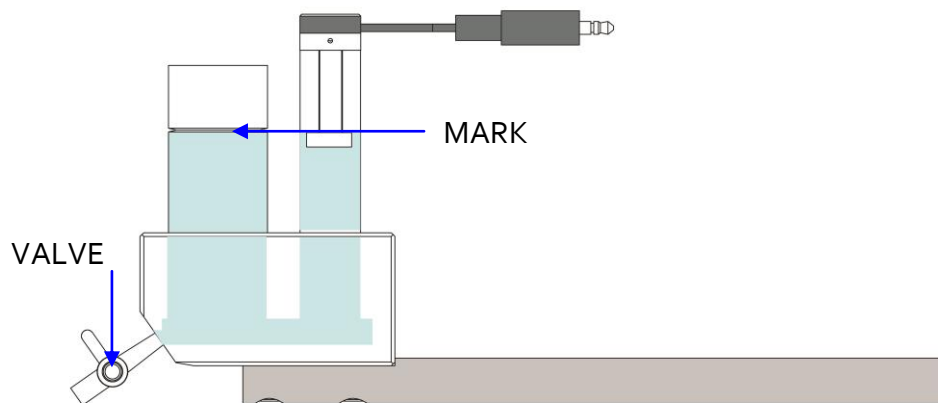



Figure 12. Fill the flasks up to the mark level.

- 4) Turn on the equipment and wait a few seconds for it to start up.
- 5) Press the  button in order to check solution salinity. Correct values are between 40 and 160, if the salinity is out of this range the display will show for few seconds the error **ERRC** (see chapter 8.7).

#### 8.4. EQUIPMENT CALIBRATION

- 1) Connect the equipment as shown in Figure 11.
- 2) Set the rear panel CALIBRATION switch in the position that matches with the volumetric flask we will work with. That is, if we work with 1ml flask we will set the selector to 1ml, and so respectively for cases of 3ml and 5ml.

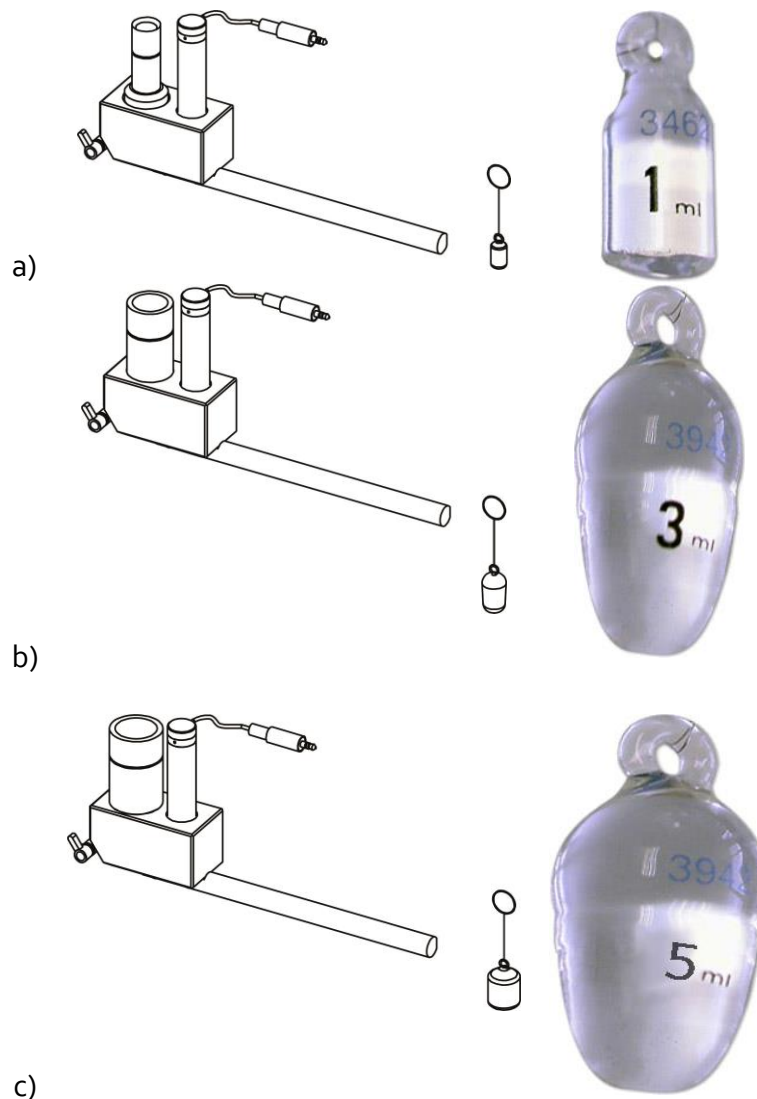
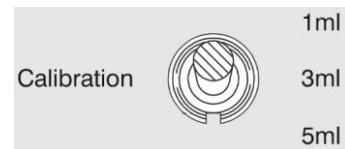


Figure 13. Flasks and calibrated volumes: a) LE7504 1ml, b) LE7503 3ml and c) LE7505 5ml.

- 3) Fill the CONTAINER with the salt solution prepared as described in section 8.2.
- 4) Open the valve to fill the volumetric and sensor flasks. You must fill both flasks until the saline solution reaches the mark.

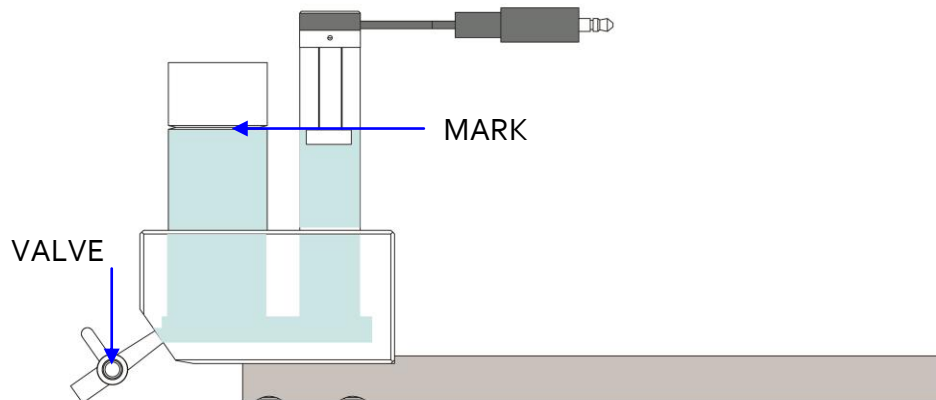



Figure 14. Fill the flasks up to the mark level.

- 5) Turn on the equipment and wait a few seconds for it to start up.
- 6) If the display does not show 0.00 press the  button so that the equipment balances the solution level.
- 7) Dip the calibrated volume in the volumetric flask and wait 15 minutes, thus the platinum electrode will be impregnated and the equipment will not have measurements drifts. The equipment's display will show a value.

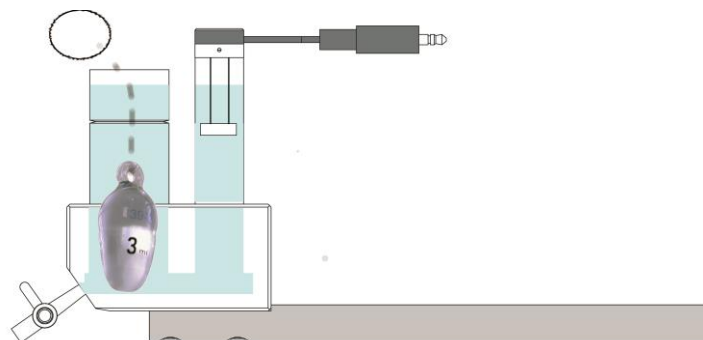







Figure 15. Calibrated volume dip.

- 8) Press the  button to tell the equipment the calibrated volume measurement, then the display will show the value of the volume (for example when working with the flask of 1ml the display will show 1.00).
- 9) Press the foot switch to set the measurement, then the  led will light up indicating that the calibrated volume can be removed.
- 10) Dry the calibrated volume.



- 11) Press the foot switch again, the equipment will do a zero and the  led will turn off.
- 12) Dip the calibrated volume again and the measurement showed on the display should be correct, if the value deviates from the expected one press the  button and return to step 9.

## 8.5. TAKING MEASUREMENTS

1. Power up the CONTROL UNIT (LE 7500). The  LED will come on, and after a few seconds the DISPLAY will show 0.00.
2. Turn the valve for the solution to enter the VOLUMETRIC FLASK until it reaches the mark on the VOLUMETRIC FLASK. Press the ZERO buttons to indicate the starting point (0 millilitres of volume).

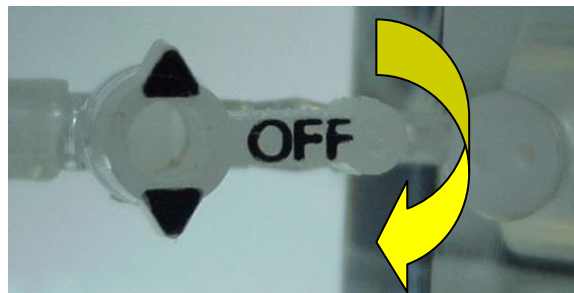





Figure 16. Valve.

3. Calibrate the instrument (see chapter 8.4).
4. When the DISPLAY is at 0.00 insert the limb, the volume of which is to be determined, into the VOLUMETRIC FLASK.
5. Press the PEDAL if you wish to save the reading or send it to the PC. The reading on the DISPLAY will be set and the  led is turned on.
6. Press the PEDAL again to release the DISPLAY and the  led will be turned off.
7. Return to step 4 to take a new measurement.

### WARNING:

- If the level of liquid has changed the level should be reset to zero using the  button.

- The unit can be recalibrated after a certain time to achieve greater precision.

## 8.6. EMPTYING AND CLEANING THE SENSOR UNIT

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1. Switch off the CONTROL UNIT before emptying the SENSOR UNIT.
2. Remove the CONTAINER and place it at a level below the flasks.

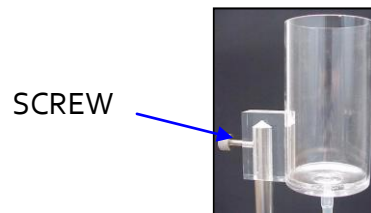
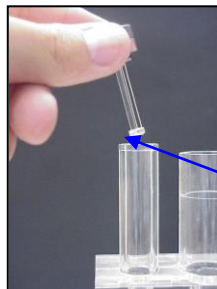


Figure 17. Container.

3. Turn the valve to empty the flasks into the CONTAINER.
4. Close the gate valve.
5. Remove the valve from the flasks.
6. Empty the CONTAINER through the valve to the sewage. We do not advise to keep the used solution.
7. Once the flasks and the container are empty, remove the platinum electrode and clean it carefully with distilled water.



**WARNING**  
Do not touch the  
platinum electrode

Figure 18. Platinum Electrode.

8. Allow the electrode to air-dry (never dry it with a cloth since the electrode is deformed easily and would lose its linearity affecting the measurements done).
9. Once dry, place the electrode in its starting position in the SENSOR FLASK.

10. In order to clean the flasks and the container you should use a soapy solution and cleaning them with distilled water. Afterwards, they should be dried with a dry cloth.



**WARNING:** Never use alcohol or alcohol-based detergents to clean Perspex parts, if used grooves will appear in the transparent plastic. This damage is not covered by the warranty.

## 8.7. ERROR SIGNALS


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Depending on the operating mode, the DISPLAY can show 2 information messages:

### 8.7.1. ERRC

– CAUSE:

Calibration is not permitted because the increase in the signal picked up by the electrode is insufficient due to one of the following causes:

- The level of salinity of the solution is low (check with the  button).
- The volume of the volumetric flask used is too big.
- The transducer is in the wrong position.

– SOLUTION:

- Correct the salinity (increase salinity).
- Use a smaller volumetric flask.
- Place the transducer in the right position.

### 8.7.2. ERRS

– CAUSE:

The level of salinity of the solution is outside tolerance. The correct margins are between 40 and 160. Levels below 40 indicate that the solution must be more concentrated (add NaCl). Levels above 160 indicate that the solution must be diluted (add distilled water).

– SOLUTION:

Correct the concentration of the solution.

## 9. WORKING WITH THE SEDACOM SOFTWARE

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The purchase of the **Sedacom** software option is needed for transferring the data to a computer (please contact your local sales delegate for more information). The **Sedacom** software reference is composed a USB Flash key containing the software Installer, License for use and **Sedacom** User's Manual. Follow the next instructions:

- Please refer to the **Sedacom** User's Manual for instructions about how to install and use the software with the present device.
- A serial port (RS232) communications cable (provided with the present device) is needed for the connection between the present device and the computer in which the **Sedacom** software is installed. Please refer to the present User's Manual for instructions about how to connect this cable to the device chapter 8.1.
- If the computer doesn't have any serial port, the RS232/USB adapter is needed (ref. CONRS232USB, contact your local sales delegate for more information).

**WARNING:** the RS232 communication cable provided with the device is used for any connection of the device with an associated software (**Sedacom**, etc.). When the device is used without software in first instance, this cable needs to be preserved and kept in secure place in case the need of using the system with a software arises in the future. In this last case, if the user lost the cable, a new one should be purchased to his local sales delegate (ref. CONRS232). The warranty time of this cable is the same than the warranty time of the device.

## 10. TROUBLESHOOTING

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This table features instructions to solve the most frequent problems.

PROBLEM	SOLUTION
The equipment does not start up.	<ul style="list-style-type: none"> <li>• Ensure that the voltage of mains is the same as that selected in the fuse holder.</li> <li>• Check the condition of the fuses.</li> </ul>
When <b>CALIBRATION</b> button is pressed to calibrate the device, the display shows the error message "ERRC"	<ul style="list-style-type: none"> <li>• The level of salinity of the solution is low (check with the <b>CHECK SOLUTION</b> button). Add salt to the solution.</li> <li>• The volume of the volumetric flask used is too big. You must use the proper calibrated volume.</li> <li>• The transducer is in the wrong position. Place it correctly.</li> </ul>
When <b>CHECK SOLUTION</b> button is pressed to test the saline solution, the display shows the error message "ERRS"	<ul style="list-style-type: none"> <li>• If the displayed value is below 40, the saline has little salt; you should increase the salt concentration.</li> <li>• If the displayed value is greater than 160, the saline solution is too much salty, you must reduce the concentration of salt</li> </ul>
The measurements are not sent to the <b>Sedacom</b> program by pressing the foot switch.	<ul style="list-style-type: none"> <li>• Check that the RS232 cable is connected between the computer and the equipment.</li> <li>• Check that the foot switch is connected to the equipment.</li> <li>• Check the configuration of serial port and device in the program <b>Sedacom</b>.</li> <li>• If you are using a USB to RS232 adapter, check the installation of the drivers on the computer.</li> </ul>

## 11. PREVENTIVE MAINTENANCE

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	EXPERIMENT	WHEN NECESSARY
CLEAN THE FLASKS	<input checked="" type="checkbox"/>	
CLEAN PLATYNUM ELECTRODE		<input checked="" type="checkbox"/>
CHECK SOLUTION	<input checked="" type="checkbox"/>	
CALIBRATE THE EQUIPMENT	<input checked="" type="checkbox"/>	
CHECK CABLES CONNECTION	<input checked="" type="checkbox"/>	
PREPARE NEW SALTY SOLUTION		<input checked="" type="checkbox"/>

## 12. TECHNICAL SPECIFICATIONS

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<b>POWER SUPPLY</b> Input Voltage Frequency Fuses Maximum Power Conducted noise	115/230 VAC 50/60 Hz 2 fuses 5mm*20mm 100mA 250V 12W EN55022 /CISPR22/CISPR16 class B
<b>BEHAVIOURARL CONDITIONS</b> Working temperature Working relative humidity Storage temperature	10°C a +40°C 0% a 85% RH, without condensation 0°C a +50°C, without condensation
<b>COMMUNICATIONS</b> Interface Connector	RS232C Connector Delta 9 female
<b>DIMENSIONS</b> Width x Height x Depth: Weight	232mm x 111mm x 297mm 3.58 kg

**DECLARACIÓN DE CONFORMIDAD  
DECLARATION OF CONFORMITY  
DECLARATION DE CONFORMITÉ**

Nombre del fabricante: **Panlab s.l.u.**  
 Manufacturer's name: [www.panlab.com](http://www.panlab.com)  
 Nom du fabricant: [info@panlab.com](mailto:info@panlab.com)

Dirección del fabricante: **Energía, 112**  
 Manufacturer's address: **08940 Cornellà de Llobregat**  
 Adresse du fabricant: **Barcelona SPAIN**

Declara bajo su responsabilidad que el producto: **PLETISMOMETRO DIGITAL**  
 Declares under his responsibility that the product:  
 Déclare sous sa responsabilité que le produit:

Marca / Brand / Marque: **PANLAB**

Modelo / Model / Modèle: **LE 7500**

Cumple los requisitos esenciales establecidos por la Unión Europea en las directivas siguientes:  
 Fulfills the essential requirements established by The European Union in the following directives:  
 Remplit les exigences essentielles établies pour l'Union Européenne selon les directives suivantes:

<b>2006/95/EC</b>	Directiva de baja tensión / Low Voltage / Basse tension
<b>2004/108/EC</b>	Directiva EMC / EMC Directive / Directive CEM
<b>2012/19/EU</b>	La Directiva de Residuos de Aparatos Eléctricos y Electrónicos (WEEE) / The Waste Electrical and Electronic Equipment Directive (WEEE) / Les déchets d'équipements électriques et électroniques (WEEE)
<b>2011/65/EU</b>	Restricción de ciertas Sustancias Peligrosas en aparatos eléctricos y electrónicos (ROHS) / Restriction of the use of certain Hazardous Substances in electrical and electronic equipment (ROHS) / Restriction de l'utilisation de certaines substances dangereuses dans les équipements électriques et électroniques (ROHS)
<b>2006/42/EC</b>	Directiva mecánica / Machinery directive / Directive mécanique

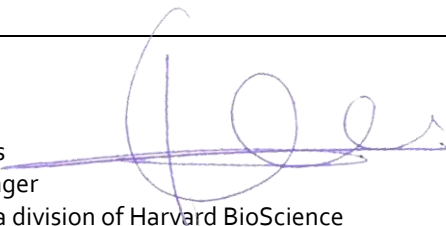
Para su evaluación se han aplicado las normas armonizadas siguientes:  
 For its evaluation, the following harmonized standards were applied:  
 Pour son évaluation, nous avons appliqué les normes harmonisées suivantes:

Seguridad / Safety / Sécurité:	<b>EN61010-1:2011</b>
EMC:	<b>EN61326-1:2012 Class B</b>
FCC:	<b>FCC47CFR 15B Class B</b>
Safety of machinery:	<b>EN ISO 12100:2010</b>

En consecuencia, este producto puede incorporar el marcado CE y FCC:  
 Consequently, this product can incorporate the CE and FCC marking:  
 En conséquence, ce produit peut incorporer le marquage CE et FCC:



En representación del fabricante:  
 Manufacturer's representative:  
 En représentation du fabricant:

  
 Carme Canalís  
 General Manager  
 Panlab s.l.u., a division of Harvard BioScience

Cornellà de Llobregat, Spain  
 30/06/2014



**(GB) Note on environmental protection:**

After the implementation of the European Directive 2002/96/EU in the national legal system, the following applies:

Electrical and electronic devices may not be disposed of with domestic waste. Consumers are obliged by law to return electrical and electronic devices at the end of their service lives to the public collecting points set up for this purpose or point of sale. Details to this are defined by the national law of the respective country. This symbol on the product, the instruction manual or the package indicates that a product is subject to these regulations. By recycling, reusing the materials or other forms of utilising old devices, you are making an important contribution to protecting our environment.

**(E) Nota sobre la protección medioambiental:**

Después de la puesta en marcha de la directiva Europea 2002/96/EU en el sistema legislativo nacional, Se aplicara lo siguiente:

Los aparatos eléctricos y electrónicos, así como pilas y baterías, no se deben tirar a la basura doméstica. El usuario está legalmente obligado a llevar los aparatos eléctricos y electrónicos, así como pilas y baterías, al final de su vida útil a los puntos de recogida municipales o devolverlos al lugar donde los adquirió. Los detalles quedaran definidos por la ley de cada país. El símbolo en el producto, en las instrucciones de uso o en el embalaje hace referencia a ello. Gracias al reciclaje, a la reutilización de materiales i a otras formas de reciclaje de aparatos usados, usted contribuirá de forma importante a la protección de nuestro medio ambiente.

**(F) Remarques concernant la protection de l'environnement :**

Conformément à la directive européenne 2002/96/CE, et afin d'atteindre un certain nombre d'objectifs en matière de protection de l'environnement, les règles suivantes doivent être appliquées.

Elles concernent les déchets d'équipement électriques et électroniques. Le pictogramme "picto" présent sur le produit, son manuel d'utilisation ou son emballage indique que le produit est soumis à cette réglementation. Le consommateur doit retourner le produit usager aux points de collecte prévus à cet effet. Il peut aussi le remettre à un revendeur. En permettant enfin le recyclage des produits, le consommateur contribuera à la protection de notre environnement. C'est un acte écologique.

**(D) Hinweis zum Umweltschutz:**

Ab dem Zeitpunkt der Umsetzung der europäischen Richtlinie 2002/96/EU in nationales Recht gilt folgendes:

Elektrische und elektronische Geräte dürfen nicht mit dem Hausmüll entsorgt werden. Der Verbraucher ist gesetzlich verpflichtet, elektrische und elektronische Geräte am Ende ihrer Lebensdauer an den dafür eingerichteten, öffentlichen Sammelstellen oder an die Verkaufsstelle zurückzugeben. Einzelheiten dazu regelt das jeweilige Landesrecht. Das Symbol auf dem Produkt, der Gebrauchsanleitung oder der Verpackung weist auf diese Bestimmungen hin. Mit der Wiederverwertung, der stofflichen Verwertung oder anderer Formen der Verwertung von Altgeräten leisten Sie einen wichtigen Beitrag zum Schutz unserer Umwelt.

**(I) Informazioni per protezione ambientale:**

Dopo l'implementazione della Direttiva Europea 2002/96/EU nel sistema legale nazionale, ci sono le seguenti applicazioni:

I dispositivi elettrici ed elettronici non devono essere considerati rifiuti domestici. I consumatori sono obbligati dalla legge a restituire i dispositivi elettrici ed elettronici alla fine della loro vita utile ai punti di raccolta collerici preposti per questo scopo o nei punti vendita. Dettagli di quanto riportato sono definiti dalle leggi nazionali di ogni stato. Questo simbolo sul prodotto, sul manuale d'istruzioni o sull'imballo indicano che questo prodotto è soggetto a queste regole. Dal riciclo, e re-utilizzo del material o altre forme di utilizzo di dispositivi obsoleti, voi renderete un importante contributo alla protezione dell'ambiente.

**(P) Nota em Protecção Ambiental:**

Após a implementação da directiva comunitária 2002/96/EU no sistema legal nacional, o seguinte aplica-se:

Todos os aparelhos eléctricos e electrónicos não podem ser despejados juntamente com o lixo doméstico. Consumidores estão obrigados por lei a colocar os aparelhos eléctricos e electrónicos sem uso em locais públicos específicos para este efeito ou no ponto de venda. Os detalhes para este processo são definidos por lei pelos respectivos países. Este símbolo no produto, o manual de instruções ou a embalagem indicam que o produto está sujeito a estes regulamentos. Reciclando, reutilizando os materiais dos seus velhos aparelhos, esta a fazer uma enorme contribuição para a protecção do ambiente.