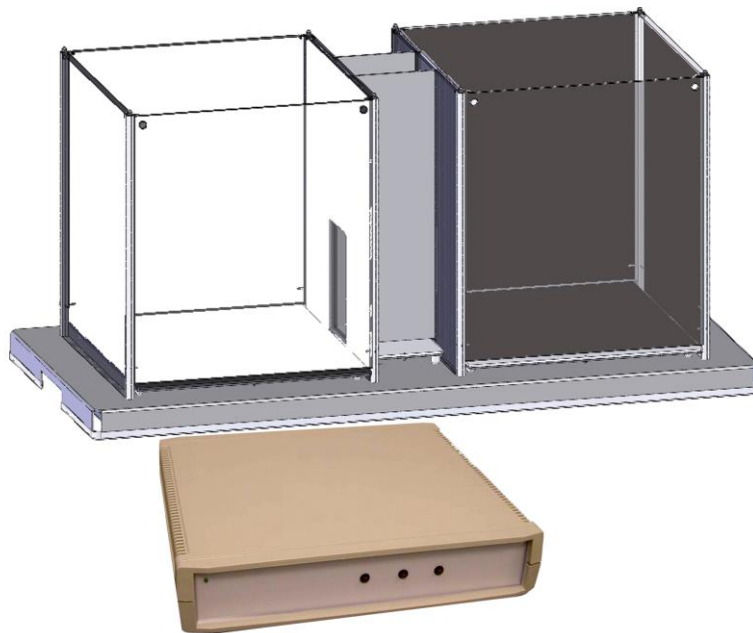


Hardware User's Manual

Automated place preference box – Black and white



References:

LE892 (76-0218), LE893 (76-0219)

Publication:

PB-MF-MAN-061-REV1.0

Limitation of Liability








PANLAB does not accept responsibility, under any circumstances, for any harm or damage caused directly or indirectly by the incorrect interpretation of what is expressed in the pages of this manual.

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

PANLAB reserves the right to modify, in part or in total, the contents of this document without notice.

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 INSTALLATION



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


- A. Due to the weight of the cage and its dimensions it should be moved between two persons in order to avoid possible damage when moving it.
- 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.

Class A equipment is intended for use in an industrial environment.



WARNING

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with these instructions, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

4. MAINTENANCE



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.

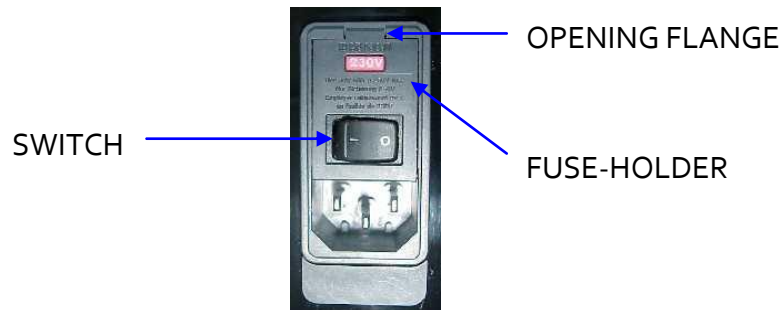


Figure 1. Power inlet, main switch and fuse holder.

FUSE REPLACEMENT

In case of an over-voltage or other incident in the AC net making it impossible to turn on the equipment, 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.

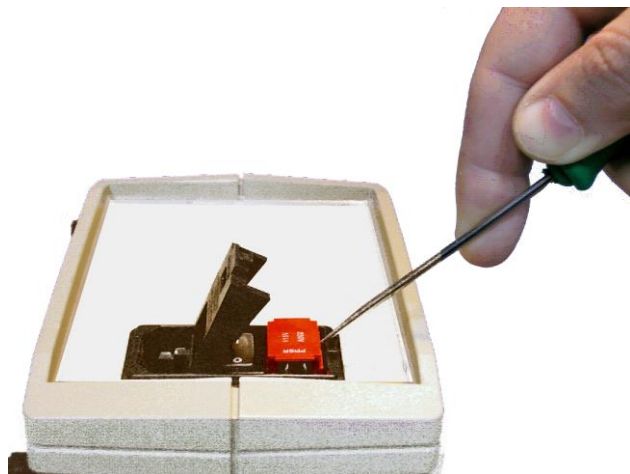
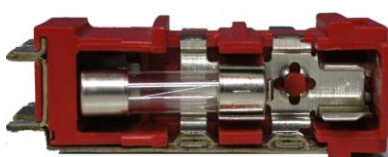


Figure 3. Extract fuse-holder.

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



CORRECT



INCORRECT

Figure 4. Fuses position.

- 5 Insert again fuse-holder, both possible positions are correct because power supply is universal.
- 6 If the fuses blow again unplug the equipment and contact technical service.



WARNING

For electrical safety, never open the equipment. The power supply has dangerous voltages.

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6. INTRODUCTION

Panlab's Standard Place Preference is a standard experimental chamber used to evaluate rodents' preference of conditioned place. This is a test commonly used to detect medicine reinforcement properties (or natural stimulus). It is also used to research the brain neurobiology involved in reward and addiction.

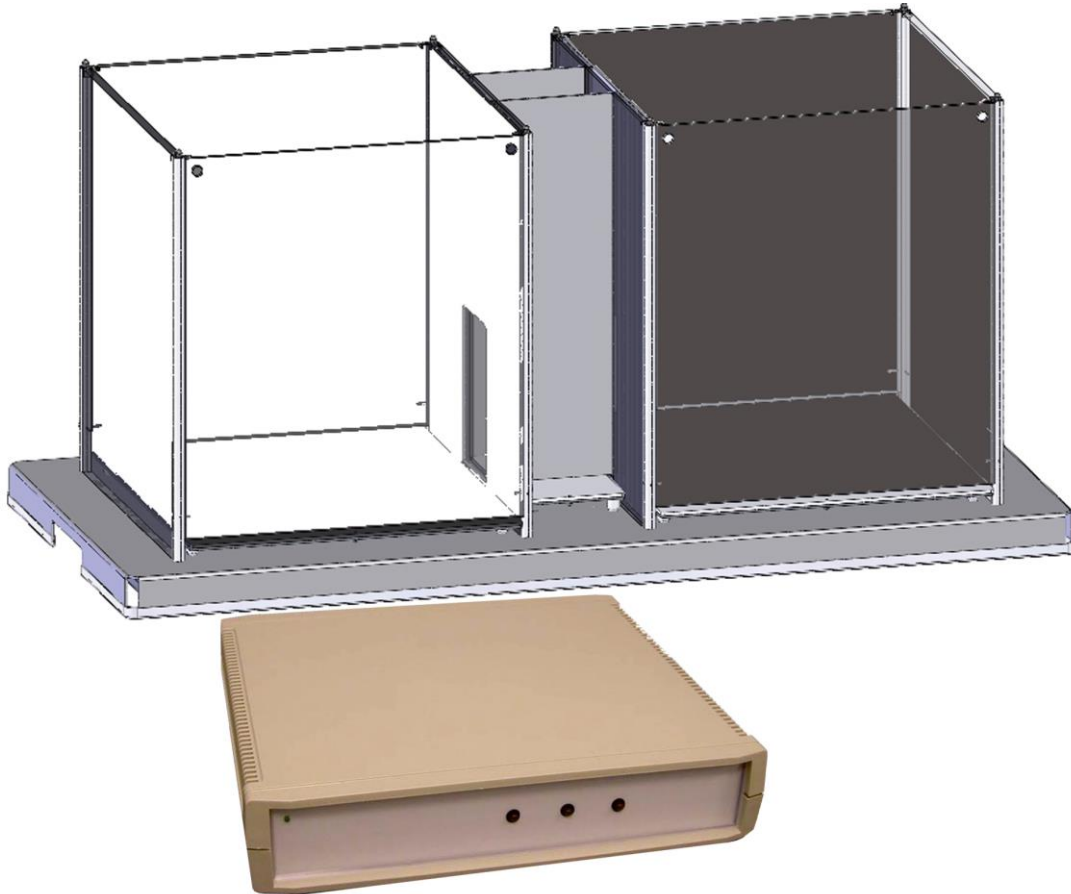


Figure 5. Place Preference.

- It features three Perspex compartments: two side compartments, one black and the other white, and a central grey compartment with connection doors (featuring manually-activated sliding doors).
- Smooth and rough floors are supplied for the white and black compartments.
- Front panels are transparent but removable smoked translucent lids are also supplied.

Experimentation cages are supplied with an automatic animal position detection system. Animal position is detected by means of load cells (transducers) installed below the cage platform. Cages with automatic position detection are controlled with **PPCWin** software.

7. EQUIPMENT DESCRIPTION

7.1. CONTROL UNIT FRONT PANEL

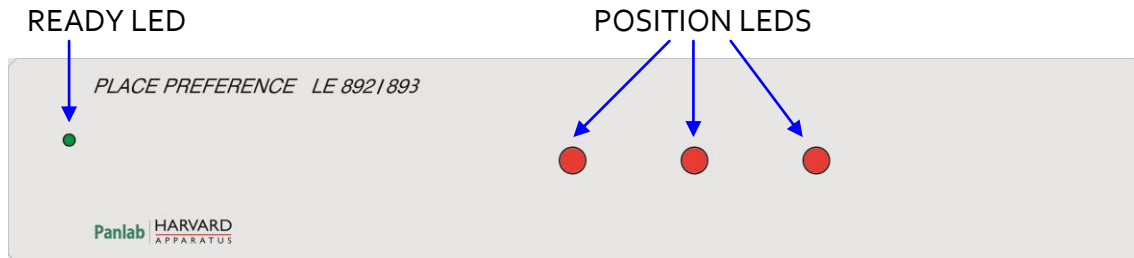


Figure 6. Control unit front panel.

- **READY LED:** 3 mm green led. When the control unit is turned on and the cage is connected to it, this led will flash for about 20 seconds, indicating that the system is completing the auto-balance procedure. Once the sensors are balanced this led will remain continuously on indicating that the equipment is ready to work.
- **POSITION LEDS:** there are three 5 mm red leds, one for each compartment of the cage. These leds remain on while the animal is detected in the respective compartment.

7.2. CONTROL UNIT REAR PANEL

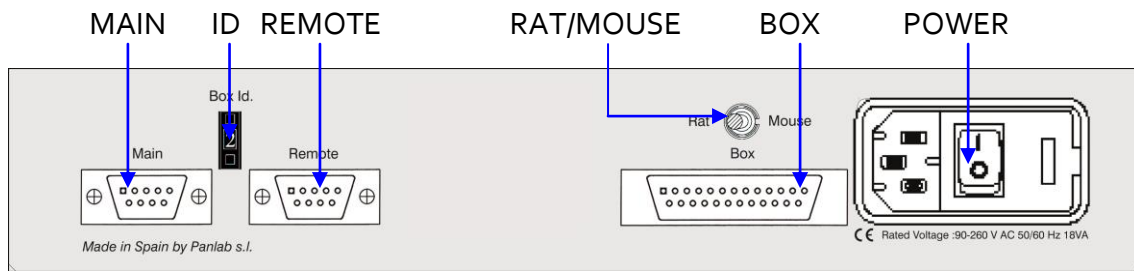


Figure 7. Control Unit Rear Panel.

- **MAIN:** DB9 female port. It is used to connect the control unit to the computer serial port (if the control unit is first), or to connect the control unit to the REMOTE port of the previous control unit.
- **REMOTE:** DB9 male port. It is used to connect the control unit to the MAIN port of next control unit (when there are several units). If the control unit is the last one this port is left free.
- **ID:** Decimal selector used to identify the control unit. A computer is able to control up to 8 control units with the **PPCWin** software. All connected cages must have a different identifier so that computer can identify them.
- **BOX:** DB25 connector, it is used to connect the control unit to the experimentation cage. The control unit receives information from the cage load cells through this connector to identify where the animal is.
- **RAT/MOUSE:** This switch must be set in the correct position depending on the box used:
 - **RAT:** When working with rat cage LE 892.
 - **MOUSE:** When working with mice cage LE 893.
- **POWER:** Power inlet, main switch and fuse holder.

7.3. EXPERIMENTATION CAGE

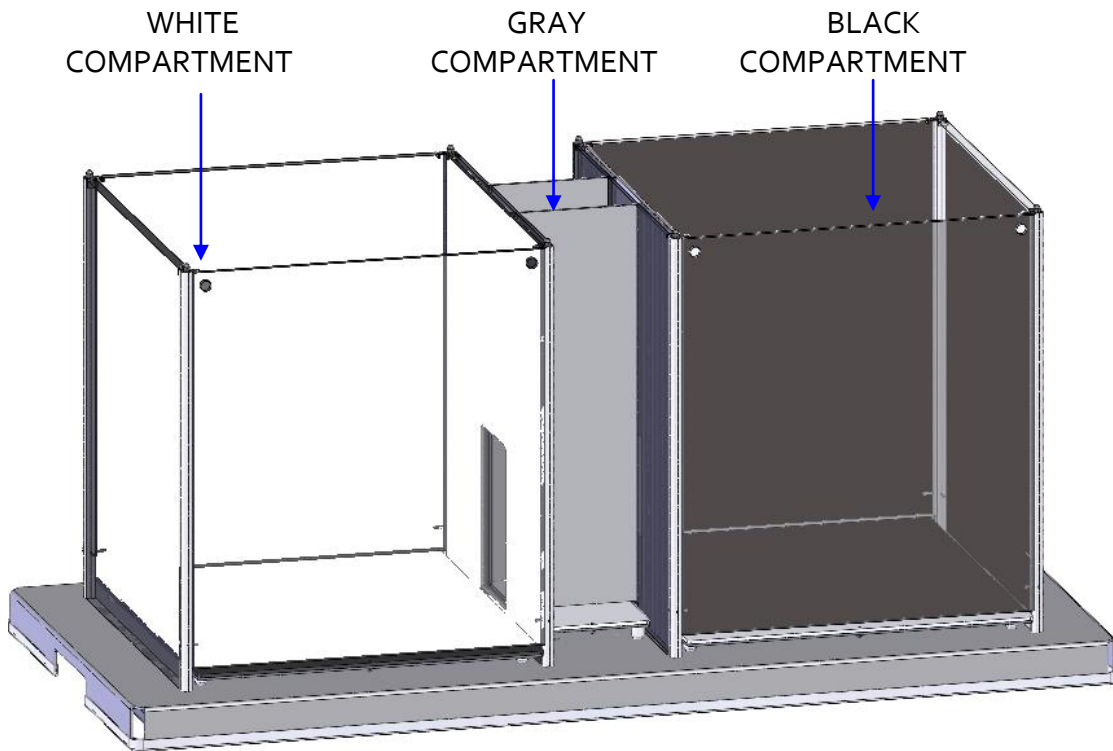


Figure 8. Experimentation cage front view.

The experimentation cage has three compartments. The two on either side are larger. The left one is white and the right one is black. The central compartment is smaller and grey. It features two doors to communicate with the side compartments.



Figure 9. Central compartment doors in white and black side seen from both faces.

The front panel of the three compartments is transparent, but can be placed in them a smoked translucent cover. In the case of the central compartment is sliding the front panel and can be transparent or smoked.



Figure 10. Central compartment smoked translucent and transparent cover.

The animal's position is detected by load cells. Only the grey and black compartments have load cells under the floor. When the system does not detect the animal in the grey or the black compartment, it is assumed that the animal is in the white compartment.

The platforms have legs that rest on four supports which transmit the weight to the sensor located under the cage platform.



Figure 11. Platforms of lateral compartments and the central compartment.

The floors of the black and white sides can be smooth or rough, while the central compartment is just smooth.



Figure 12. Floors of compartments white, grey and black.

On the left side of the platform there is a DIN 7 female connector. It is used to connect the experimentation cage to the control unit.

8. EQUIPMENT CONNECTION

Figure 13 shows the necessary connections.

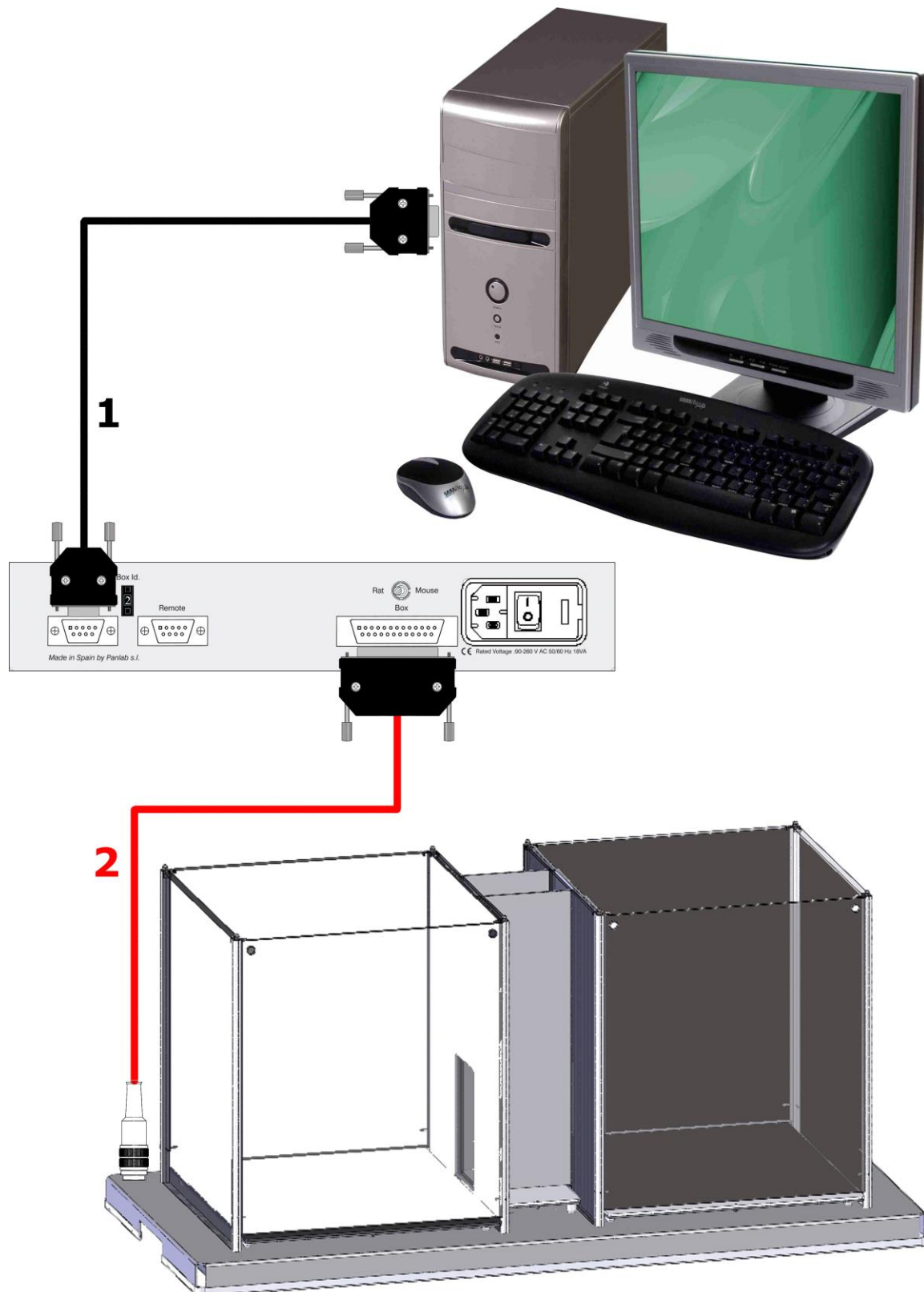


Figure 13. Equipment connection.

The necessary cables and connections are listed in the next table:

	FROM	TO	CABLE
1	LE 89X MAIN	Computer COM port	RS 232
2	LE 89X Box	Cage platform	DB25 to DIN7

A computer can control up to eight cages, with control units connected in cascade.

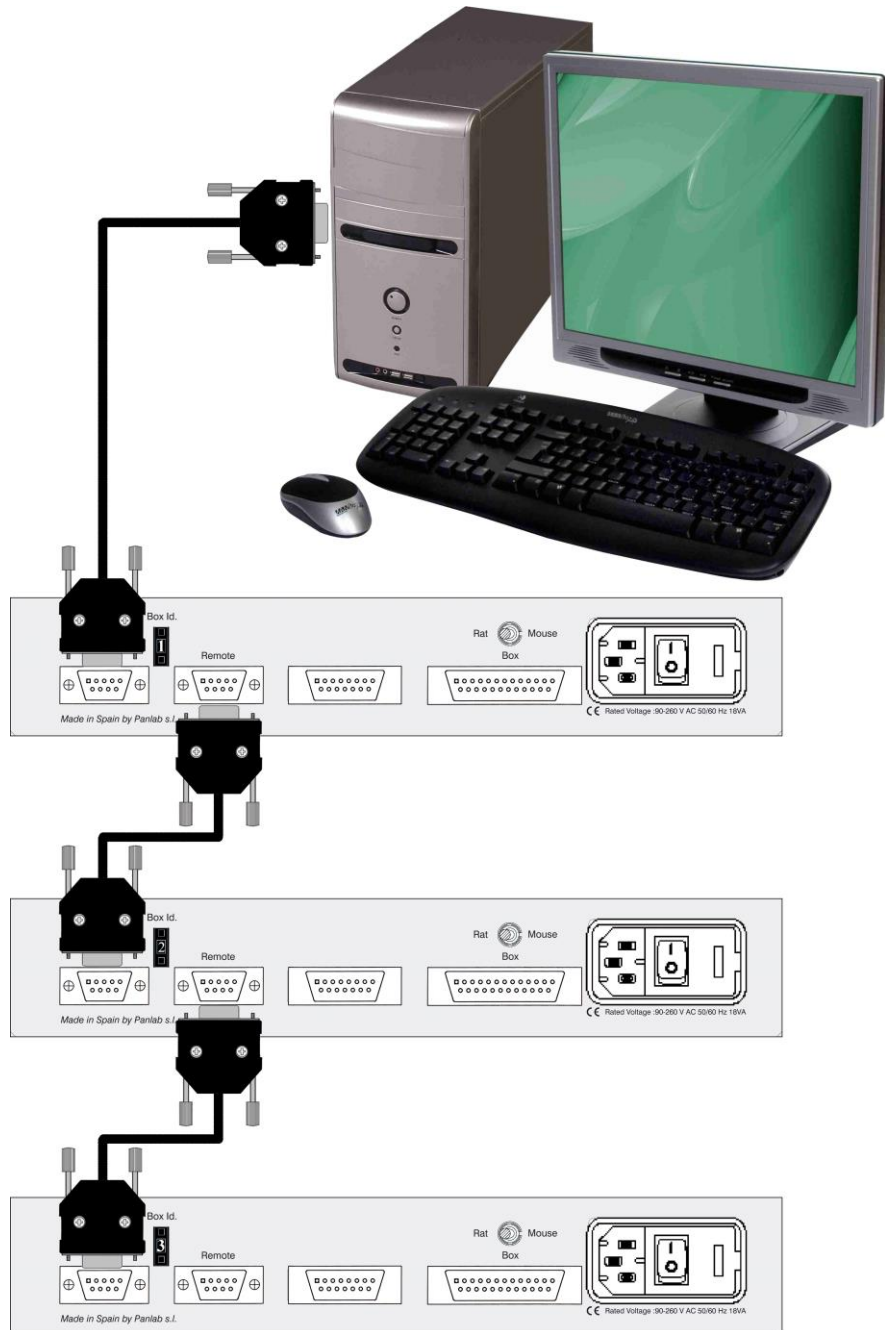


Figure 14. Example of connection of 3 cages.

Figure 14 shows an example of how three control units would be connected. The program used to control the system is **PPCWin**. Some points have to be taken into account when connecting more than one control unit to the computer:

- All control units must have a different identifier (**ID**), so that the computer can correctly identify them.
- It is not necessary for all ID numbers to be consecutive. For example, a system with 3 cages can work with IDs 1-2-3 or 4-6-8.
- It is not necessary for control units to be physically connected in order according to their ID numbers. For example, a system with three units (1, 2 and 3) could be connected in the following combinations: 1-2-3, 1-3-2, 2-1-3, 2-3-1, 3-1-2 and 3-2-1.
- The computer serial port is connected to the MAIN port of the first unit.
- The REMOTE port of each control unit is connected to the MAIN port of the next control unit.
- The REMOTE port of the last unit is left free.

9. CAGE ASSEMBLY

9.1. ASSEMBLING THE FLOORS

The floors of the left and right areas (White and Black) can be smooth or rough, simply turning the ceiling which makes the function of floor.

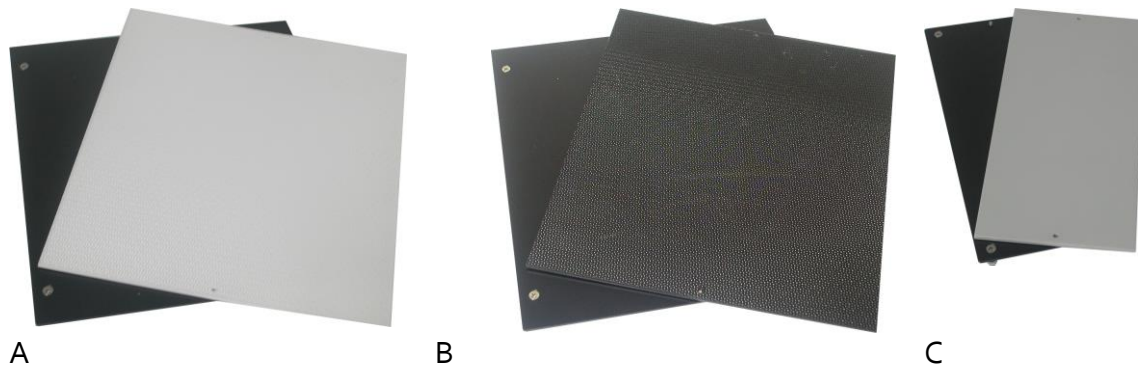


Figure 15. Floors and platforms of white, black and grey compartments.

To fit the platforms and floors you must fit the hole in the floor with the platform pivot.

9.2. PLACING FLOORS IN THE CAGE

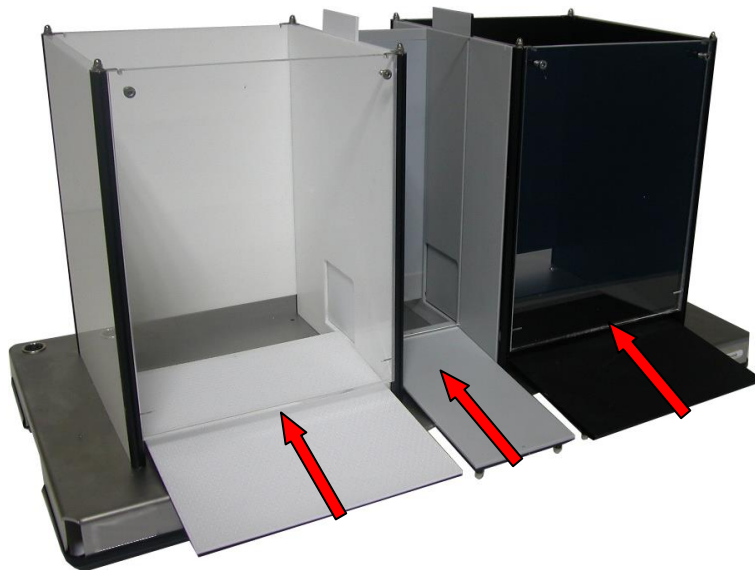


Figure 16. Placing the floors in the cage.

From the front side of the cage insert the set of floor and platform, done in point 9.1, and match the 4 legs of the platforms with the 4 holes we find inside the cage. These supports in grey and black compartments transmit the weight to the load cell located under the cage.

9.3. ASSEMBLING THE DOORS

Central compartment doors are inserted from above and slide down helped by a guide. Mounting or not these doors can change the configuration of the cage.

9.4. ASSEMBLING FRONT COVERS

In black and white compartments the front cover is fixed and transparent, it has in the top two metal pegs for hanging a translucent smoked lid.

In the case of the central compartment the cover is inserted like the doors, by inserting it from above and lowering it through the guide. The cover can be transparent or translucent smoked. The rear panel of this compartment is grey opaque and again is inserted through the guide from the top.

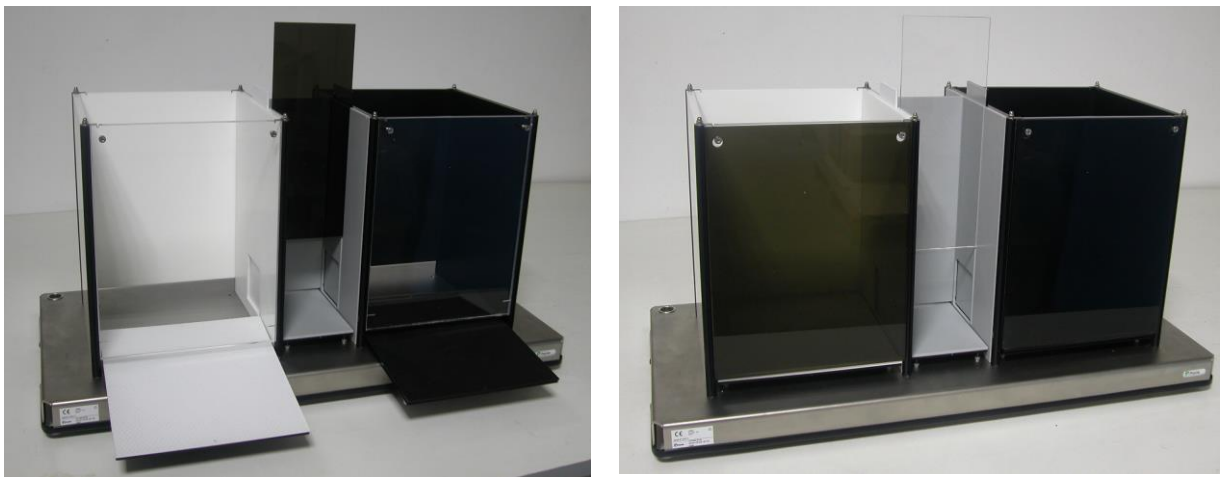


Figure 17. Two examples of different configurations of front covers.

10. WORKING WITH THE EQUIPMENT


10.1. RUNNING AN EXPERIMENT

The following steps must be followed to work with the unit.

- 1) Connect equipment as shown in chapter 8.
- 2) Configure boxes with accessories (front covers, floors) as shown in chapter 9.
- 3) If you work with the program **PPCWin** and several control units, choose a different ID for each cage
- 4) If working with the rat cage (LE892), select **Rat** with the selector on the rear panel. If working with the mice cage (LE893), select **Mouse** with the same selector.
- 5) Connect the control unit to the AC network and turn it on.



- 6) Wait a few seconds until the  led remains continuously on. It will flash during auto-calibration.

- 7) The position led  of left compartment will turn on although there is not animal in the cage (the system only has two sensors, if the animal is not detected by any of these sensors the system assumes that the animal is in the compartment without sensor).

- 8) Follow the **PPCWin** user's manual instructions to prepare the experiment.
- 9) Place animal in the experimentation cage and run the experiment.
- 10) Once the experiment has ended, remove animal from experimentation cage, clean the cage and return to step 8 if the experiment is to be repeated with more animals.
- 11) Once the experimental session has ended, turn off the control units, exit from **PPCWin** software and clean the experimental cages.

10.2. ERROR MESSAGE

If the control unit is not correctly connected to the experimentation cage or the floors have not been correctly placed in their supports, or if one or both load cells are damaged: when control unit is turned on, the ready led will start flashing, indicating that the system is auto-balancing. But after 20 seconds, the two red leds on the right side will flash too.

This is an error message indicating that the system will not work. To solve this problem proceed as follows:

- Turn off the control unit.
- Check that the control unit and experimentation cage are correctly connected.
- Check that the floors are correctly placed in their supports.
- Turn on the control unit.
- Wait around 20 seconds while system is auto balancing.

If the error message still appears it means the load cells are damaged.

10.3. CLEANING THE FLOORS

To clean the floors you should use a wet cloth and then you can dry it with a dry cloth.

10.4. CLEANING THE DOORS

To clean the doors you should use a wet cloth and then you can dry it with a dry cloth.

10.5. CLEANING THE TRANSPARENT AND SMOKED COVERS

To clean the floors you should use a wet cloth and then you can dry it with a dry cloth.



WARNING: For this accessories never use alcohol or alcohol derived products, otherwise stripes will appear in the transparent plastic..

11. TROUBLESHOOTING

This table features instructions to solve the most frequent problems.

PROBLEM	SOLUTION
The equipment does not start up.	<ul style="list-style-type: none"> Check the condition of the fuses.
The two right side red position leds are blinking.	<ul style="list-style-type: none"> Ensure that the cable DB25 to DIN7 connects the cage and control unit. Check that the floors are correctly placed. If the cable is connected and all is correctly placed this means both load cells are damaged.
One of the red position leds placed to the right is blinking.	<ul style="list-style-type: none"> The load cell is damaged or blocked or the floor is not correctly placed.
The control unit does not detect animal position.	<ul style="list-style-type: none"> Check that Ready led is on. Check that floors are correctly placed. Check that the RAT/MOUSE switch is in the correct position. (Rat weight threshold detection is 30gr, if you work with mice the equipment will not be able to detect them).
The equipment does not communicate with PPCWin .	<ul style="list-style-type: none"> Make sure your equipment is connected to PC via RS-232. Check that PPCWin settings so that the serial port is correct. Restart the equipment and the PC to do a RESET in communications. Check in the rear panel of control unit that the ID number is the same that the one set in PPCWin. If you work with more than one control unit, check that all the ID numbers are different so that the computer is able to distinguish all cages.
Although there is no animal placed in the	<ul style="list-style-type: none"> This is not an error; the system

<p>cage, the left red position led in the control unit is on, indicating that the animal is in the white compartment.</p>	<p>only has two sensors, one in the corridor and the other one in the black compartment, if the animal is not detected by any of these sensors the system assumes that the animal is in the compartment without sensor, the white one.</p>
---	--

12. PREVENTIVE MAINTENANCE

	EXPERIMENT
CLEANING THE FLOORS	<input checked="" type="checkbox"/>
CLEANING THE DOORS	<input checked="" type="checkbox"/>
CLEANING THE TRANSPARENT/ SMOKED COVERS	<input checked="" type="checkbox"/>

13. TECHNICAL SPECIFICATIONS

POWER SUPPLY Input voltage: Frequency: Fuse: Maximum power: Conducted noise:	Universal 100 - 240 VAC 50 /60 Hz 2 fuses 5x20mm 2A 250V Fast 18 W EN55022 /CISPR22/CISPR16 class B												
ENVIRONMENTAL CONDITIONS Operating temperature: Operating relative humidity: Storage temperature:	10°C to +40°C 0% to 85% RH, non-condensing 0°C to +50°C, non-condensing												
POSITION DETECTION Rat : Mouse:	30 gr 7 gr												
CONNECTOR MAIN, REMOTE <u>Pin</u> 2 3 5 7 9	<u>Function</u> Rxd Txd Gnd Rts Cts												
COMUNICATIONS OUTPUT Standard Interface: Connector: Transmission speed :	RS232C Delta 9 contacts connector 19200 bauds, 8 bits, no parity												
CONNECTOR BOX <u>Pin</u> 10 11 12 13 23 24 25	<u>Function</u> Transducer left S- Transducer left S+ Transducer Right S+ Transducer Right S- Transducer +Exc (10V) Transducer - Exc Gnd												
DIMENTIONS (CONTROL UNIT) Width x Height x Depth: Weight:	285mm x 70mm x 250mm 1.84 kg												
DIMENTIONS (EXPERIMENTATION CAGE) ¹													
<table><tr><td>MODEL</td><td>ANIMAL</td><td>SIZE (Length*Width*Height)</td><td>WEIGHT (Kg)</td></tr><tr><td>LE892</td><td>Rat</td><td>406*848*411</td><td>21</td></tr><tr><td>LE893</td><td>Mouse</td><td>296*618*323</td><td>11</td></tr></table>		MODEL	ANIMAL	SIZE (Length*Width*Height)	WEIGHT (Kg)	LE892	Rat	406*848*411	21	LE893	Mouse	296*618*323	11
MODEL	ANIMAL	SIZE (Length*Width*Height)	WEIGHT (Kg)										
LE892	Rat	406*848*411	21										
LE893	Mouse	296*618*323	11										

¹ Dimentions are expressed in millimetres.

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

Nombre del fabricante: **Panlab s.l.u.**
 Manufacturer's name: www.panlab.com
 Nom du fabricant: info@panlab.com

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

Declaro bajo su responsabilidad que el producto: **PLACE PREFERENCE**
 Declares under his responsibility that the product:
 Déclare sous sa responsabilité que le produit:

Marca / Brand / Marque: **PANLAB**

Modelo / Model / Modèle: **LE 892 – LE 893**

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:

2006/95/EC	Directiva de baja tensión / Low Voltage / Basse tension
2004/108/EC	Directiva EMC / EMC Directive / Directive CEM
2012/19/EU	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)
2011/65/EU	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)
2006/42/EC	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:	EN61010-1:2011
EMC:	EN61326-1:2013 Class A¹
Safety of machinery:	EN ISO 12100:2010

¹This equipment complies with the limits for class A equipment in accordance with CISPR 11 definition and is classed as a Class A digital device, pursuant to CFR Title 47 part 15 of the FCC Rules and is intended to be used in an industrial environment.

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



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

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

Cornellà de Llobregat, Spain
 30/04/2014

(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.