Hardware User’s Manual

Air puff control

Treadmill TS

References:
LE8700TSAP  76-0920  Air-puff accessory for LE8700TS treadmill
LE8708TSAP  76-0921  Air-puff accessory for LE8708 TS treadmill
LE8706TSAP  76-0923  Air-puff accessory for LE8706 TS treadmill
LE8709TSAP  76-0924  Air-puff accessory for LE8709 TS treadmill
LE8710MTSAP 76-0926  Air-puff accessory for LE8710M TS treadmill
LE8710RTSAP 76-0925  Air-puff accessory for LE8710R TS treadmill

Publication:
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Limitation of Liability

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1. SYMBOLS TABLE

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

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

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. 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.

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

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.

![Fuse Replacement Diagram]

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.

3. Extract fuse holder using the screwdriver.

4. Replace fuses if necessary. Insert fuses in the fuse-holder in the correct 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 reasons, never open the equipment. The power supply has dangerous voltage levels.
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6. INTRODUCTION

The **Air Puff Control** is a device designed to provide a pressurised air stimulus on rat and mouse **Treadmills TS**. It is an alternative to conventional shock stimulus. A less aggressive stimulus is thus supplied to the animal.

The **Air Puff** always works together with a **Treadmills TS** control unit, either with a one-lane, two-lane or five-lane control unit.

![Figure 5. Air Puff Control.](image)

The device detects animal position by means of a metal grid (the system detects resistances below 6MΩ) and supplies the air stimulus to each **Treadmill** lane separately.

Animal position detection is performed with an AC voltage of 5V and is not detected by the animal. The animal does not suffer any kind of electrical danger because the current flowing is in the micro-amp order of magnitude.

The system requires an external air supply, either a compressor or a pressurized air installation (this pressurized air system is **not** supplied by default by Panlab). This pressure must be regulated externally to the desired value.

**WARNING:** The pressure in the equipment air inlet must never be higher than 6 bars. Pressures between 3 and 6 bars are recommended for work, depending on the number of animals that will be stimulated.
7. EQUIPMENT DESCRIPTION

7.1. FRONT PANEL

- **ACTIVATION**: There are up to 5 numbers depending on the number of lanes, one for each lane (from 1 to 5). When the channel in the Air Puff is active, the number is green lighted, and when the animal is detected in the grid the number is orange lighted. There are 3 models of Air Puff taking into account the number of lanes:
  - 1 lane: Only the number 1 will light.
  - 2 lanes: Only the numbers 1 and 2 will light.
  - 5 lanes: The 5 numbers will light.
7.2. REAR PANEL

The picture belongs to the 5 lanes model. In the 2 lanes model GRID and AIR OUT from 3 to 5 are missing. In the 1 lane model GRID and AIR OUT from 2 to 5 are missing.

- **GRID**: Five DB15 female connectors, one for each Treadmill TS lane. When it is necessary to stimulate the animal with air instead of electrical shock, unplug the shock cables from the Treadmill TS control unit and connect them to the Air Puff. The equipment detects animal resistance to determine when the animal reaches the grid.

- **AUX**: DIN 12 pins female connector used to connect the Air Puff control unit and Treadmill TS control unit.

- **POWER**: Power inlet, main switch and fuse holder.

- **AIR IN**: Air inlet, the pressurised air supply must be connected to this inlet. Remember that pressure must never exceed 6 bars.

- **AIR OUT**: Five air outlets, one for each Treadmill TS lane. These outlets conduct the air to the collector placed at the end of the lane that stimulates the animal.
7.3. COLLECTOR

The collector receives the pressurised air coming from the Air Puff OUT outlet through the polyurethane tube, and diffuses it through the four diffuser tubes so that the air stimulus reaches the animal. There is a collector for each Treadmill TS lane.

Figure 8. Collector.
8. COLLECTOR AND TUBES ASSEMBLING

On the rear face of the transparent Perspex covers that prevent the animal from escaping from the treadmill lane, there are four holes where the collector’s diffuser tubes will be inserted. The collector is kept in place by pressure.

![Figure 9. Collector placement.](image)

The procedure to insert and extract polyurethane tubes from the pneumatic inlets/outlets is as follows:

![Figure 10. Procedure to insert and detach tubes.](image)

1) To insert tubes, introduce them firmly as shown in step 1 of Figure 10.

2) To detach polyurethane tubes from the inlet/outlet, pull the tube outwards (Figure 10.3) while pressing the external ring (Figure 10.2) inwards.
9. EQUIPMENT CONNECTIONS

The Air Puff control unit can work with 1-lane, 2-lane and 5-lane treadmills.

9.1. ELECTRICAL CONNECTIONS 1 LANE

The electrical connections are shown in the following schematic:

![Figure 11. Equipment electrical connections for 1 lane.](image)

To facilitate equipment connection, the necessary cables and connections are listed in the following table:

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
<th>CABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 AIR PUFF GRID 1</td>
<td>GRID 1</td>
<td>DB15 to DB9 cable</td>
</tr>
<tr>
<td>2 TREADMILL TS MOTOR</td>
<td>MOTOR</td>
<td>Motor cable</td>
</tr>
<tr>
<td>3 TREADMILL TS USB</td>
<td>PC USB port</td>
<td>USB type A-B cable</td>
</tr>
<tr>
<td>4 AIR PUFF AUX</td>
<td>TREADMILL TS AUX</td>
<td>DIN 12 male-male cable</td>
</tr>
</tbody>
</table>
9.2. ELECTRICAL CONNECTIONS 2 LANES

The electrical connections are shown in the following schematic:

![Schematic Diagram](image)

**Figure 12.** Equipment electrical connections for 2 lanes.

To facilitate equipment connection, the necessary cables and connections are listed in the following table:

<table>
<thead>
<tr>
<th></th>
<th>FROM</th>
<th>TO</th>
<th>CABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>AIR PUFF GRID 1</td>
<td>GRID 1</td>
<td>DB15 to DB9 cable</td>
</tr>
<tr>
<td>2</td>
<td>AIR PUFF GRID 2</td>
<td>GRID 2</td>
<td>DB15 to DB9 cable</td>
</tr>
<tr>
<td>3</td>
<td>TREADMILL TS MOTOR</td>
<td>MOTOR</td>
<td>Motor cable</td>
</tr>
<tr>
<td>4</td>
<td>TREADMILL TS USB</td>
<td>PC USB port</td>
<td>USB type A-B cable</td>
</tr>
<tr>
<td>5</td>
<td>AIR PUFF AUX</td>
<td>TREADMILLTS AUX</td>
<td>DIN 12 male-male cable</td>
</tr>
</tbody>
</table>
9.3. ELECTRICAL CONNECTIONS 5 LANES

The electrical connections are shown in the following schematic:

Figure 13. Equipment electrical connections for 5 lanes.

To facilitate equipment connection, the necessary cables and connections are listed in the following table:

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
<th>CABLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR PUFF GRID 1</td>
<td>GRID 1</td>
<td>DB15 to DB9 cable</td>
</tr>
<tr>
<td>AIR PUFF GRID 2</td>
<td>GRID 2</td>
<td>DB15 to DB9 cable</td>
</tr>
<tr>
<td>AIR PUFF GRID 3</td>
<td>GRID 3</td>
<td>DB15 to DB9 cable</td>
</tr>
<tr>
<td>AIR PUFF GRID 4</td>
<td>GRID 4</td>
<td>DB15 to DB9 cable</td>
</tr>
<tr>
<td>AIR PUFF GRID 5</td>
<td>GRID 5</td>
<td>DB15 to DB9 cable</td>
</tr>
<tr>
<td>TREADMILL TS MOTOR</td>
<td>MOTOR</td>
<td>Motor cable</td>
</tr>
<tr>
<td>TREADMILL TS USB</td>
<td>PC USB port</td>
<td>USB type A-B cable</td>
</tr>
<tr>
<td>AIR PUFF AUX</td>
<td>TREADMILLTS AUX</td>
<td>DIN 12 male-male cable</td>
</tr>
</tbody>
</table>
9.4. PNEUMATIC CONNECTIONS 1 LANE

The pneumatic connections are shown in the following schematic. This example features a compressed air tank, but an air compressor can be used too. Remember to regulate inlet pressure between 3 and 6 bars.

![Figure 14. Pneumatic connections 1 lane.](image)

The following table lists the tubes necessary for the pneumatic connections:

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
<th>TUBE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 AIR PUFF OUT 1</td>
<td>COLLECTOR 1</td>
<td>Ø6 mm*Ø4 mm</td>
</tr>
<tr>
<td>2 AIR SOURCE</td>
<td>AIR PUFF IN</td>
<td>Ø12 mm*Ø8 mm</td>
</tr>
</tbody>
</table>
9.5. PNEUMATIC CONNECTIONS 2 LANES

The pneumatic connections are shown in the following schematic. This example features a compressed air tank, but an air compressor can be used too. Remember to regulate inlet pressure between 3 and 6 bars.

![Diagram of pneumatic connections](image)

Figure 15. Pneumatic connections 2 lanes.

The following table lists the tubes necessary for the pneumatic connections:

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
<th>TUBE</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR PUFF OUT 1</td>
<td>COLLECTOR 1</td>
<td>Ø6 mm*Ø4 mm</td>
</tr>
<tr>
<td>AIR PUFF OUT 2</td>
<td>COLLECTOR 2</td>
<td>Ø6 mm*Ø4 mm</td>
</tr>
<tr>
<td>AIR SOURCE</td>
<td>AIR PUFF IN</td>
<td>Ø12 mm*Ø8 mm</td>
</tr>
</tbody>
</table>
9.1. PNEUMATIC CONNECTIONS 5 LANES

The pneumatic connections are shown in the following schematic. This example features a compressed air tank, but an air compressor can be used too. Remember to regulate inlet pressure between 3 and 6 bars.

![Pneumatic Connections 5 Lanes Diagram]

**Figure 16. Pneumatic connections 5 lanes.**

The following table lists the tubes necessary for the pneumatic connections:

<table>
<thead>
<tr>
<th>FROM</th>
<th>TO</th>
<th>TUBE</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIR PUFF OUT1</td>
<td>COLLECTOR 1</td>
<td>Ø6 mm*Ø4 mm</td>
</tr>
<tr>
<td>AIR PUFF OUT2</td>
<td>COLLECTOR 2</td>
<td>Ø6 mm*Ø4 mm</td>
</tr>
<tr>
<td>AIR PUFF OUT3</td>
<td>COLLECTOR 3</td>
<td>Ø6 mm*Ø4 mm</td>
</tr>
<tr>
<td>AIR PUFF OUT4</td>
<td>COLLECTOR 4</td>
<td>Ø6 mm*Ø4 mm</td>
</tr>
<tr>
<td>AIR PUFF OUT5</td>
<td>COLLECTOR 5</td>
<td>Ø6 mm*Ø4 mm</td>
</tr>
<tr>
<td>AIR SOURCE</td>
<td>AIR PUFF IN</td>
<td>Ø12 mm*Ø8 mm</td>
</tr>
</tbody>
</table>
10. EQUIPMENT START UP

The Air Puff control unit works together with the Treadmill TS control unit.

1) Connect the DB15 to DB9 cables between the Treadmill grids and the connectors labelled GRID in the Air Puff Control (see Figure 11, Figure 12 or Figure 13, depending on the number of lanes).

2) Assemble the air collectors at the end of each Treadmill lane (see chapter 8).

3) Connect pneumatic tubes to the collectors and to the respective air outlets in the Air Puff (see Figure 14, Figure 15 or Figure 16, depending on the number of lanes).

4) Adjust inlet air pressure to the Air Puff with a regulator (inlet pressure must be regulated between 3 and 6 bars).

5) Connect the pressurised inlet tube to the AIR IN inlet on the Air Puff control unit (see Figure 14, Figure 15 or Figure 16, depending on the number of lanes).

6) Connect the Treadmill TS and Air Puff control units with the AUX cable (see Figure 11, Figure 12 or Figure 13, depending on the number of lanes).

7) Connect the Treadmill motor to the control unit.

8) Connect the Treadmill TS control unit to the computer with the USB wire.

9) Turn on both control units.

10) The treadmill will be in STOP mode when turned on, and the belt is stopped.

11) Press the icon in order to access to Treadmill TS settings.

12) Chose the option.

13) In the following screen you must select Air Puff.

14) Press twice the icon in order to accept changes and return to main screen.

15) Place rats/mice in the Treadmill lanes.
16) Select the desired speed as is explained in Treadmill TS user’s manual (speed ranges 5cm/s to 150cm/s).

17) Press the button so that the Treadmill TS control unit goes to the RUN mode with the belt running.

18) In the Air Puff control unit front panel, the numbers of the active lanes will be green lighted (1 2 3 4 5 example for the 5 lanes unit)

19) Each time an animal reaches the grid, the respective number in the front panel of the Air Puff will change from green to orange, (1 2 3 4 5 in this example animal in lane 3 reached to the grid) and an air stimulus will be given through the collector, making the animal run again. At the same time in the Treadmill TS, the counters number of shocks and time of shock will be incremented on this lane.

20) Once the experiment has ended, press the button to stop the belt.

21) Remove the animals from the Treadmill.

22) Clean the Treadmill as it’s explained in its user's manual to left it ready for the next experiment.

23) Turn off both control units.
## 11. TROUBLESHOOTING

The following table features solutions to the most common problems.

<table>
<thead>
<tr>
<th>PROBLEM</th>
<th>SOLUTION</th>
</tr>
</thead>
</table>
| Equipment does not turn on.                                             | • Check that power cords are properly connected.  
• Check fuses.                                                             |                                                                                                                                 |
| Equipment does not detect when animal reaches the grid.                 | • Ensure that grid cables are connected to their respective GRID connectors in the **Air Puff** control unit.  
• Check that you have chosen **Air Puff** in the **Treadmill TS** settings for **stimulus**. |                                                                                                                                 |
| Equipment detects animal in the grid when it is not in the grid.        | • Unplug the cable from the grid  
a. If detection number changes from orange colour to green colour, this mean that the grid is dirty, you must clean the grid with a soapy solution and then dry it (see **Treadmill TS** user’s manual). Traces of urine can produce false detections.  
b. If the detection number remains orange coloured once the cable is disconnected, contact technical service. |                                                                                                                                 |
| Equipment is not giving air stimulus.                                   | • Check that the AUX cable is connected on the rear panel of both control units.  
• Check that the detection number changes from green to orange as soon as the animal reaches to the grid.  
• Check that the **Treadmill TS** control unit is in **RUN** mode.  
• Check that compressed air source is connected to the AIR IN pneumatic connector.  
• Check that the COLECTOR is connected to the correct pneumatic outlet labelled AIR OUT in the **Air Puff** control unit.  
• Check that the compressed air source has enough pressure to supply air stimulus.  
• Check that you have chosen **Air Puff** in the **Treadmill TS** settings for **stimulus**. |
## 12. PREVENTIVE MAINTENANCE

<table>
<thead>
<tr>
<th></th>
<th>EXPERIMENT</th>
<th>MONTHLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLEAN THE GRIDS²</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>CHECK THE PRESSURE OF THE COMPRESSED AIR SOURCE</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>CHECK THE PPNEUMATIC CONNECTIONS</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>CHECK THE COLECTORS PLACEMENT</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>CHECK THE ELECTRICAL CONNECTIONS</td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

² Read the Treadmill TS user’s manual.
## TECHNICAL SPECIFICATIONS

| POWER SUPPLY | Universal input 100 Vac to 240 Vac 50/60 Hz  
2 fuses 5x20mm 2A 250V Slow  
50W  
EN55022/CISPR22/CISPR16 class B |
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GENERAL SPECIFICATIONS</td>
<td>Warming time</td>
</tr>
</tbody>
</table>
| DETECTION | Technology: Scanner  
Number of channels: 1, 2, 5  
Detection current: 5.2μA AC  
Voltage without load: 5V AC  
Internal impedance: 1 Mohm  
Detection range: 2 to 10 Mohm  
Factory detection settings: 6 Mohm |
| AIR PUFF | Technology: Air electrovalve  
In pressure range: 3 – 6 bar  
Diffuser output pressure: ≤0.9bar @ maximum input pressure  
Minimum air time: 0.3 s |
| ENVIRONMENTAL CONDITIONS | Operating temperature: 10°C to +40°C  
Operating relative humidity: 0% to 85% RH, non-condensing  
Storage temperature: 0°C to +50°C, non-condensing |
| INPUT OUTPUT | Type: TTL  
Range: 0-5V  
Input: RUN signals (1, 2 or 5 signals)  
Output: Detection channel (1, 2 or 5 signals)  
Connector: Din 12 female |
| PNEUMATIC TUBES | Material: Polyurethane  
Maximum pressure: 6 bar  
OUT | External diameter: 6 mm  
Internal diameter: 4 mm |

| IN | External diameter: 12 mm  
Internal diameter: 8 mm |
| DIMENSIONS | Width x Height x Depth: 227 x 110 x 300 mm  
Weight (1, 2 and 5 lanes): 4.2kg, 4.35kg, 4.8kg |
### DECLARACIÓN DE CONFORMIDAD
### DECLARATION OF CONFORMITY
### DECLARATION DE CONFORMITÉ

<table>
<thead>
<tr>
<th>Nombre del fabricante:</th>
<th>Panlab s.l.u.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturer’s name:</td>
<td><a href="http://www.panlab.com">www.panlab.com</a></td>
</tr>
<tr>
<td>Nom du fabricant:</td>
<td><a href="mailto:info@panlab.com">info@panlab.com</a></td>
</tr>
<tr>
<td>Dirección del fabricante:</td>
<td>Energía, 112</td>
</tr>
<tr>
<td>Manufacturer’s address:</td>
<td>08940 Cornellà de Llobregat</td>
</tr>
<tr>
<td>Adresse du fabricant:</td>
<td>Barcelona SPAIN</td>
</tr>
<tr>
<td>Declara bajo su responsabilidad que el producto:</td>
<td>AIR PUFF CONTROL</td>
</tr>
<tr>
<td>Declares under his responsibility that the product:</td>
<td></td>
</tr>
<tr>
<td>Déclare sous sa responsabilité que le produit:</td>
<td></td>
</tr>
<tr>
<td>Marca / Brand / Marque:</td>
<td>PANLAB</td>
</tr>
<tr>
<td>Modelo / Model / Modèle:</td>
<td>LE8708TSAP, LE8709TSAP, LE8700TSAP, LE8706TSAP, LE8710MTSAP, LE8710RTSAP</td>
</tr>
</tbody>
</table>

Cumple los requisitos esenciales establecidos por la Unión Europea en las directivas siguientes: Fulfils 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:

<table>
<thead>
<tr>
<th>Directiva / Directive / Directive</th>
<th>Descripción / Description / Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006/95/EC</td>
<td>Directiva de baja tensión / Low Voltage / Basse tension</td>
</tr>
<tr>
<td>2012/19/EU</td>
<td>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)</td>
</tr>
<tr>
<td>2011/65/EU</td>
<td>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)</td>
</tr>
<tr>
<td>2006/42/EC</td>
<td>Directiva mecánica / Machinery directive / Directive mécanique</td>
</tr>
</tbody>
</table>

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:                            | EN61326-1:2012 Class B |
| FCC:                            | FCC47CFR 15B Class B |
| Safety of machinery:           | EN ISO 12100:2010 |

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: | Carme Canalis |
| Manufacturer’s representative:   | General Manager |
| En représentation du fabricant:  | Panlab s.l.u., a division of Harvard BioScience |
| Cornellà de Llobregat, Spain | 087/07/2016 |
**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.

**Nota sobre la protección medioambiental:**

Después de la puesta en marcha de la directiva Europea 2002/96/EU en el sistema legislativo nacional, Se aplica 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 quedarán 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 e incluso formas de reciclaje de aparatos usados, usted contribuirá de forma importante a la protección de nuestro medio ambiente.

**Remarques concernant la protection de l’environnement :**


Elles concernent les déchets d’équipement électriques et électroniques. Le pictogramme "picto" présente 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 usagers 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.

**Hinweis zum Umweltschutz:**

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


**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 collaterali 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 materiale o altre forme di utilizzo di dispositivi obsoleti, voi renderete un importante contributo alla protezione dell’ambiente.

**Nota em Protecção Ambiental:**

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

Todos os aparelhos elétricos e electrónicos não podem ser despejados juntamente com o lixo doméstico. Consumidores estão obrigados por lei a colocar os aparelhos elétricos 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. Reciclândolo, reutilizando os materiais dos seus velhos aparelhos, esta a fazer uma enorme contribuição para a protecção do ambiente.