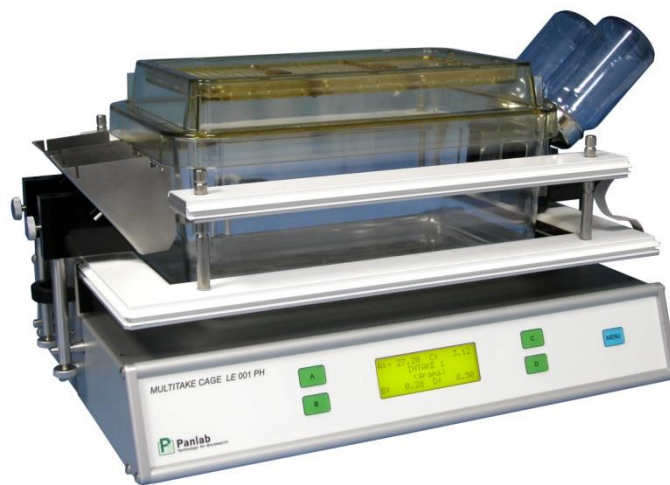


Hardware User's Manual

PheComp system cage for rats & mice

Multitake



References:

MultiTake	76-203	MultiTake Rata	76-0520
LE1401	76-0209	LE1501	76-0539
LE1402	76-0210	LE1502	76-0540
LE8827	76-0206	LE8857	76-0525
LE1404	76-0205	LE1403	76-0425
LE1405	76-0207	LE1406	76-0208

Publication:

PB-MF-MAN-015-REV2.0

Limitation of Liability








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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. 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.



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 BUTTONS SOFTLY** – Lightly pressing the buttons 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.

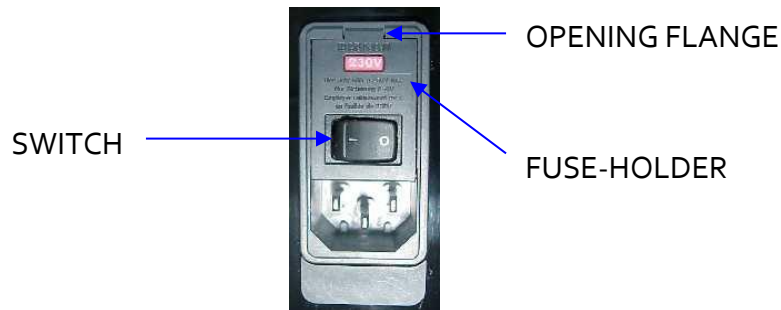


Figure 1. Power inlet, main switch and fuse holder.

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.

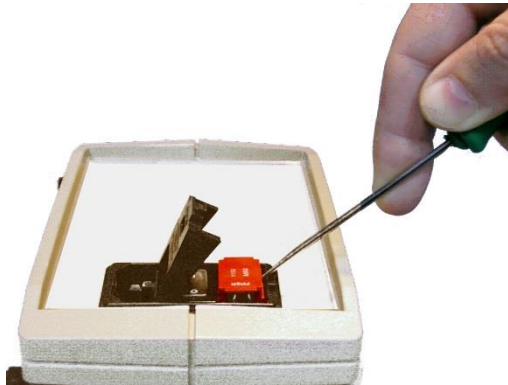


Figure 3. Extract fuse-holder.

- 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.



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

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6. INTRODUCTION

The LE001PH Multitake cage is a system used to study rodents' feeding/drinking behaviour. The equipment features four interchangeable feeders. The feeders can be supplied for liquids or for solid food. The equipment monitors the weight of each feeder, making it possible to accurately determine the amount of food or drink that the animal has taken from each one.

The LE001PH also has a system for measuring motor activity. The position-detecting method is based on a frame and a battery of infrared beams arranged in a grid. The experimental animal's movements break the infrared beams, making it possible to determine the magnitude of the motor activity through an analysis of position and frequency of beam breakage.

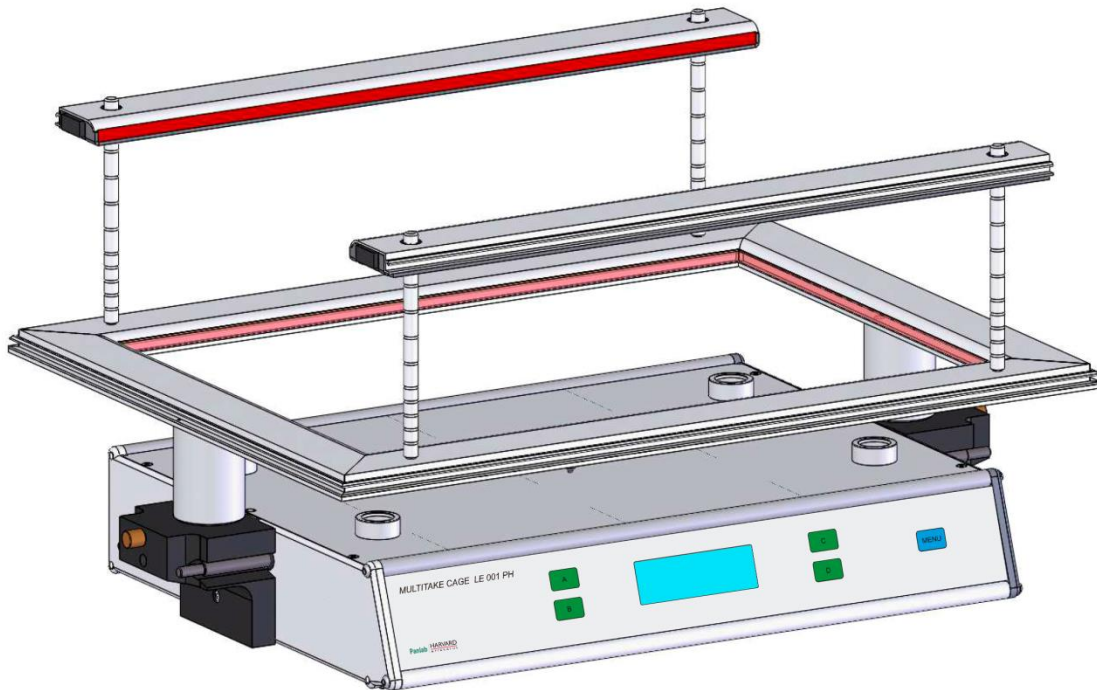


Figure 6. PheComp platform for rats.

The collected information is relayed to a computer via an RS232-type serial communication port. A single computer port can be used to link up to 24 LE001PH units by connecting them via the two RS232 serial ports (MAIN and REMOTE) included on each unit.

7. EQUIPMENT DESCRIPTION

7.1. FRONT PANEL

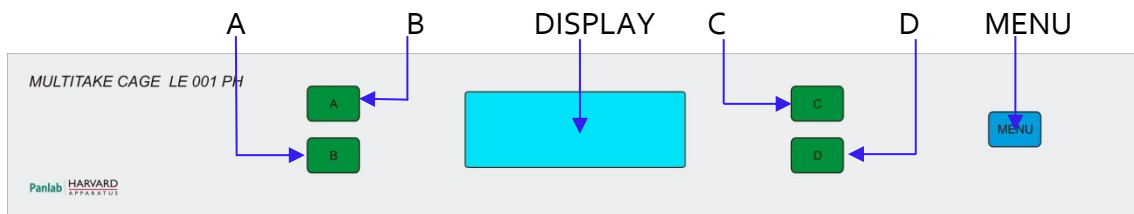


Figure 7. Front Panel.

- **A:** Food/Drink A dispenser button. Depending on the mode of the menu it has different functions.
 - In RUN mode it is used to reset (return to zero) the feeder/drinker A.
 - In calibration mode it is used to calibrate the feeder/drinker A.
- **B:** Food/Drink B dispenser button. Depending on the mode of the menu it has different functions.
 - In RUN mode it is used to reset (return to zero) the feeder/drinker B.
 - In calibration mode it is used to calibrate the feeder/drinker B.
- **C:** Food/Drink C dispenser button. Depending on the mode of the menu it has different functions.
 - In RUN mode it is used to reset (return to zero) the feeder/drinker C.
 - In calibration mode it is used to calibrate the feeder/drinker C.
- **D:** Food/Drink D dispenser button. Depending on the mode of the menu it has different functions.
 - In RUN mode it is used to reset (return to zero) the feeder/drinker D.
 - In calibration mode it is used to calibrate the feeder/drinker D.
- **MENU:** This button is used to access to the equipment setup menu.
- **DISPLAY:** Text display with 4x20 characters where the equipment shows the information.

7.2. REAR PANEL

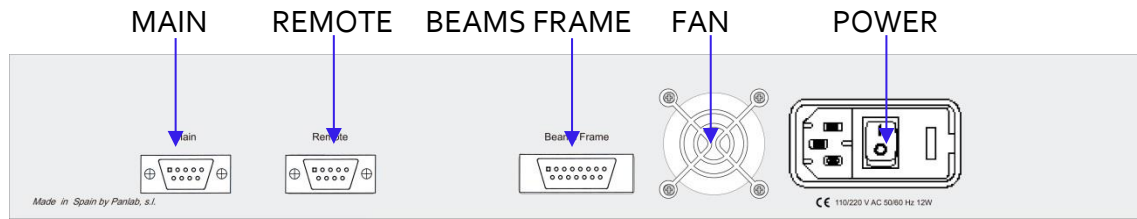


Figure 8. Rear Panel.

- **MAIN:** DB9 female connector used for the connection chain with the PC. The first physical control unit connects to the PC serial port through its port MAIN.
- **REMOTE:** Male DB9 connector used for the connection chain with the PC. Each control unit connects to the port MAIN of the following control unit through its REMOTE connector. The last control unit REMOTE port must be left free.
- **BEAMS FRAME:** DB15 female connector used to connect the control unit to the frame of activity.
- **FAN:** Fan that dissipates heat from the control unit.
- **POWER:** Mains inlet, main switch and fuse holder.

7.1. MULTITAKE PLARFORM

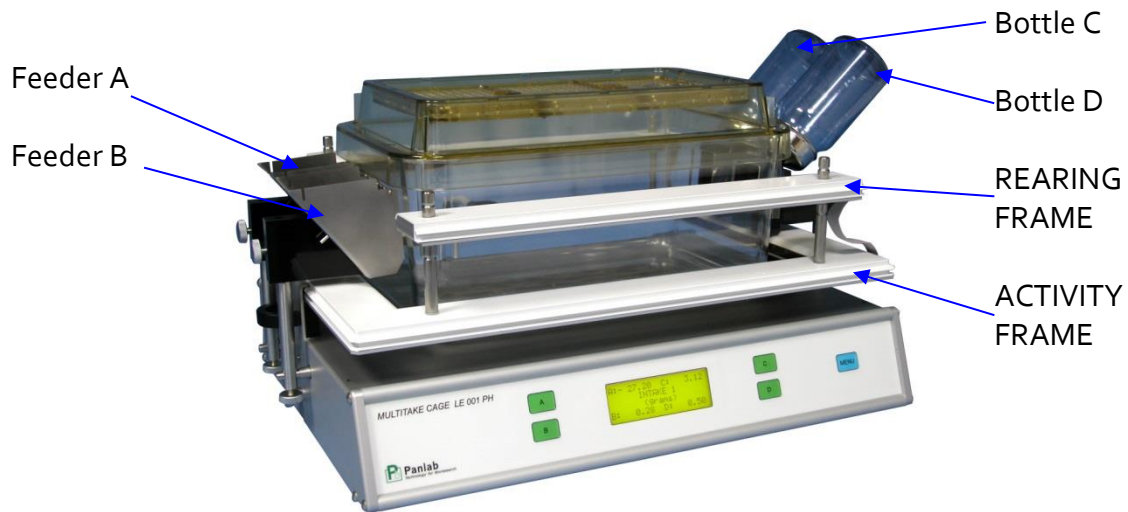


Figure 9. Multitake cage LE001PH.

- **FEEDER / BOTTLE:** The control unit has 4 axes, which can be connected both feeders for food such as beverage bottles. The equipment configuration is not fixed; it is the experimenter who decides what kind of dispenser is mounted on each axis. The axes are named as A, B, C and D to match with the buttons on the front panel to reset the value of reading.
- **REARING FRAME:** It consists of two infrared barriers, an emitter one mounted on the back, and a receiver one mounted on the front. In total there are 16 infrared beams to detect when the animal gets up on his haunches to explore (**rearing**).
- **ACTIVITY FRAME:** The activity frame detects the position of the animal in the cage by a mesh of infrared beams, a total of 16 beams in the X-axis (parallel to the front of the unit) and 9 infrared beams in the Y-axis (perpendicular to the front of the unit).

8. EQUIPMENT CONNECTION

The following figure shows the connections for a single control unit with the computer.

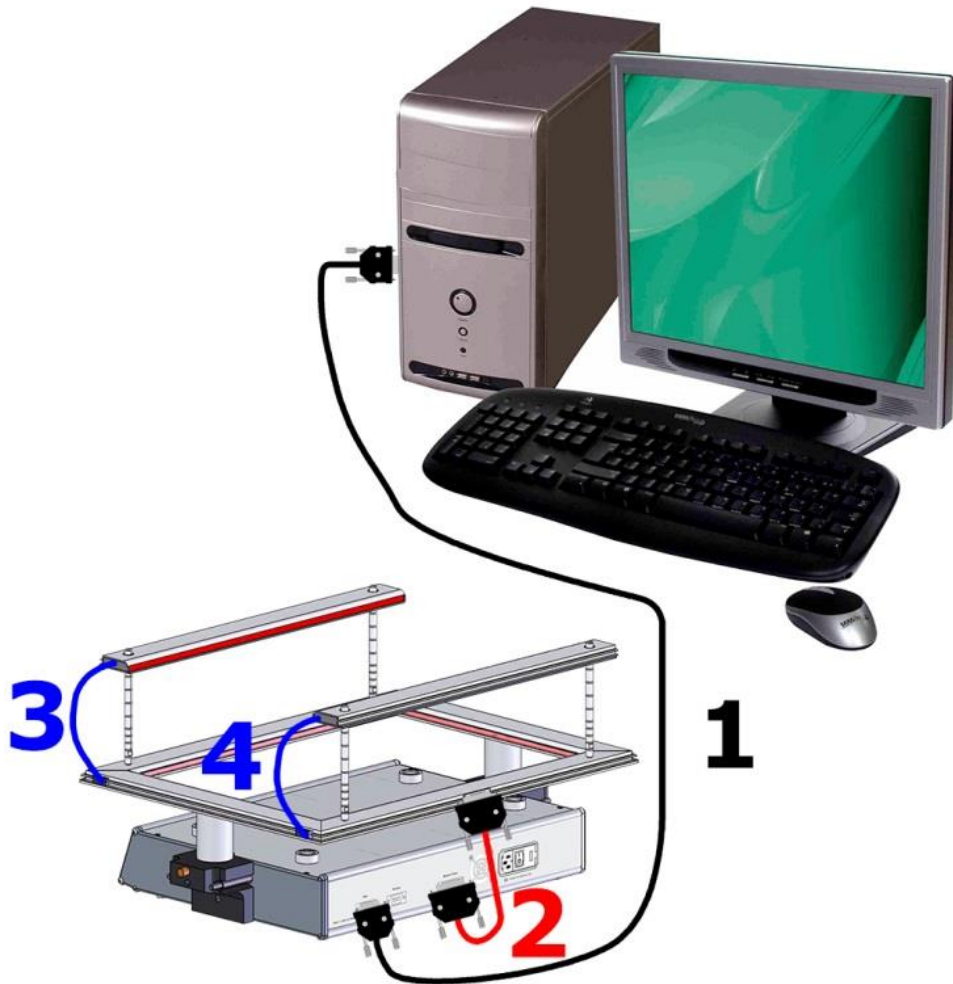


Figure 10. Single control unit connection with the PC.

The wires and the necessary connections are listed in the following table:

	FROM	TO	CABLE
1	MAIN	Computer serial port	Cable RS-232
2	BEAMS FRAME	Activity frame	DB15 cable female-female
3	Activity frame	Receivers Rearing	Flat cable
4	Activity frame	Emitters Rearing	Flat cable

When more than a control unit must be connected to the computer, you should use the MAIN-REMOTE connections. A computer is able to control up to 24 control units. In the next figure is shown an example with 3 cages, the frames connections has been intentionally omitted in the figure in order to simplify the schematic.

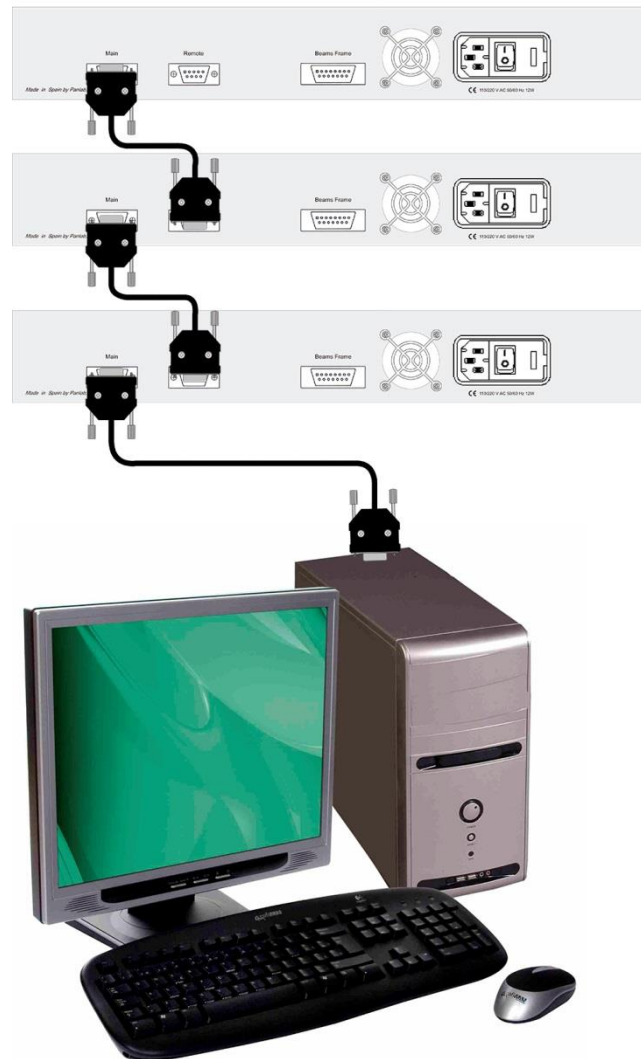


Figure 11. Example of 3 control units connection.

The following rules must be kept in order to connect several control units to a computer:

- The MAIN port of the first control unit must be connected to the computer serial port.
- The MAIN port of each control unit must be connected to the REMOTE port of the next control unit.
- The REMOTE port of the last control unit must be kept free.
- All the ID numbers must be different so that the computer is able to distinguish between the control units.
- The ID numbers must be correlative beginning by 1. For example, if you have four control units they must be identified as 1, 2, 3 and 4.
- It's not necessary connect the control units physically in the same order than the ID number. For example, if you have 3 control units you can connect them 1-2-3, or 1-3-2, or 2-1-3, or 2-3-1, or 3-1-2, or 3-2-1.

9. ASSEMBLY

Place the equipment on a flat, horizontal surface and leave at least 10 cm of free space between equipment rear panel and the wall. Never place the equipment in areas with vibrations, air currents, or in direct sunlight.

9.1. ASSEMBLING FRAME AND BARS

The activity detection system consists of a frame for detecting X-Y movements and two bars for detecting rearings (the animal enters on his haunches to explore). The frame and bars are height-adjustable to adapt to the size of the animal.

The frame is equipped with 25 infrared emitters and 25 receivers, all aligned with each other. Each emitter and receiver pair forms an infrared beam. The beams in the frame are divided into two groups, 16 along the X axis and 9 on the Y axis. The frame provides information on deambulatory movement.

Bars are used for **rearing** detection. One bar has the 16 emitters and the other 16 receivers, thus forming 16 beams. Bars are position-dependent, which means that they must be installed in the correct position to work correctly (see Figure 16 Figure 14).

The bar closer to front panel has black plastic hole supports and contains the receivers, the bar closer to rear panel has white plastic hole supports and contains the emitters.

9.2. ASSEMBLING FEEDERS

The LE001PH has four feeders (for food or drink) that are joined to each of the outgoing axles on the sides of the control unit. Insert a metal bar with a screw at one end (this is the feeder support), into an axle (see Figure 12). Notice the flat part this axle must face outward (see Figure 13).



WARNING: Avoid forcing or hitting axles and feeders. This could cause permanent deformation or damage to weight sensors.

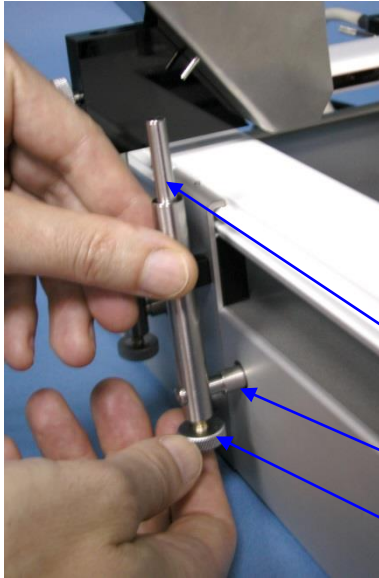


Figure 12. Assembling support of feeder.

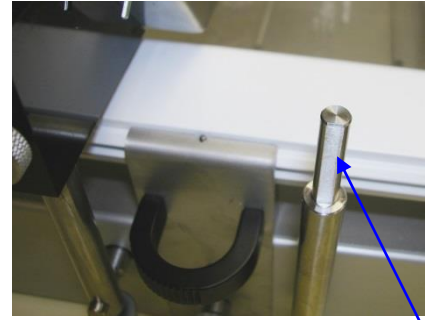


Figure 13. Flat part outward.

Flat part of this support outward

Axle joined to weight sensor

Screw for horizontal adjustment of feeder

Adjust the proximity to the cage with the screw on the bottom part of this bar. Then affix the feeder to this bar and adjust its height with the screw behind the feeder (see Figure 14).

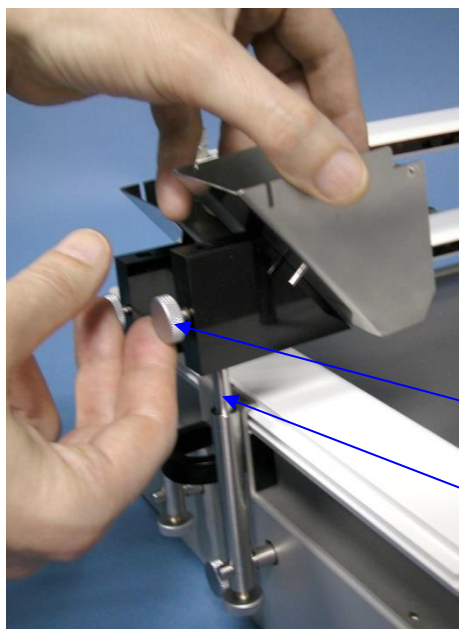
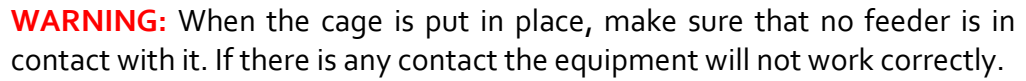
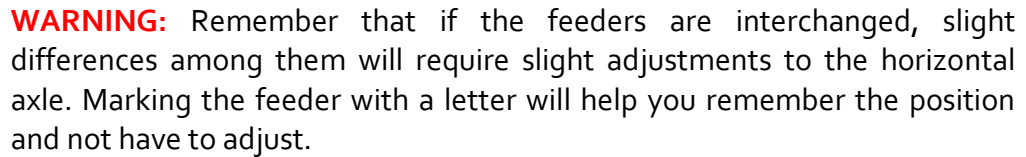


Figure 14. Assembling the feeder.

Screw for vertical feeder adjustment

Flat part of the support outward

Repeat this procedure to assemble the other feeders.



9.3. INSTALLING THE CONNECTION LEADS

The frame is equipped with a DB15 connection and it is connected to the connector labelled **Beams Frame** placed in the rear panel of the control unit, by means of a DB15 cable.

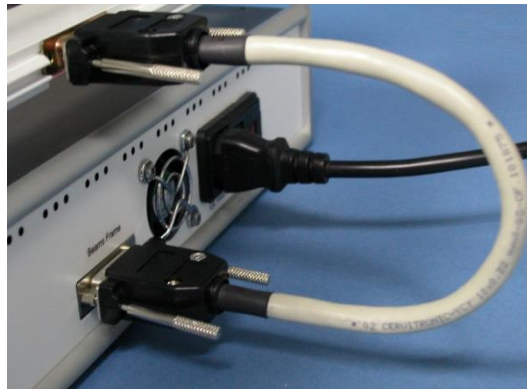


Figure 15. Frame connection.

Each bar is connected to the frame through a short flat cable. As bars are position-dependent, make sure that each bar is in the correct position (see Figure 16). The bar closer to front panel has black plastic hole supports and contains the receivers, the bar closer to rear panel has white plastic hole supports and contains the emitters.

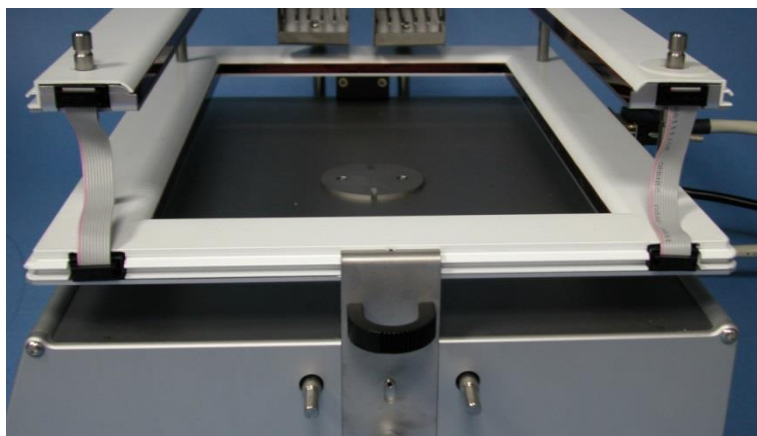


Figure 16. Bar position and connections.

10. SOFTWARE

10.1. COMPULSE SOFTWARE

The LE001PH system is supplied with the **COMPULSE** software application, which logs the data sent by the different units, displays the data on the computer screen and generates data files in formats that can be used by other programs for analysis.

Please refer to the enclosed **COMPULSE** User's Manual for a more detailed explanation of the available functions.

10.2. ACTITRACK SOFTWARE

ACTITRACK software is also included in the LE001PH system to facilitate analysis of the activity information captured with **COMPULSE**.

Please refer to the enclosed **ACTITRACK** User's Manual for a more detailed explanation of the available functions.

11. STARTING UP THE UNIT

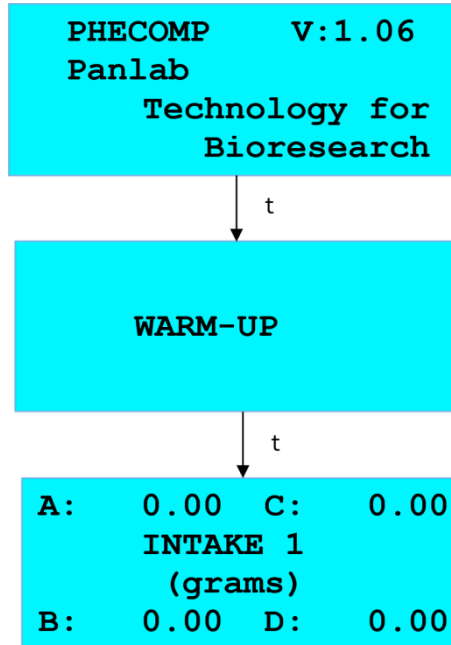


Figure 17. Sequence of screens when turning the control unit on.

To start the equipment up, switch the mains switch on the rear panel to ON. The initial screen will be shown few seconds.



Figure 18. Initial screen.

Then the warm-up message will be displayed, while the equipment is automatically setting all weights to zero, and the equipment will be ready to start a new experiment.

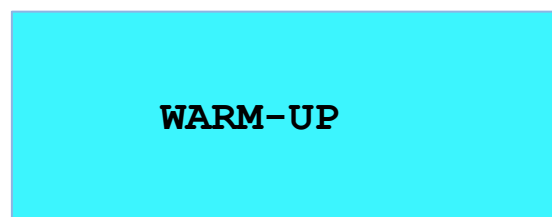


Figure 19. Warm up screen.

Then the display will show the main screen:

A:	0.00	C:	0.00
INTAKE 1			
(grams)			
B:	0.00	D:	0.00





Figure 20. Main screen.

- **A: 0.00** indicates the amount in grams of food or drink that the animal has ingested from the feeder placed in the rear of the unit, on the left side.
- **B: 0.00** indicates the amount in grams of food or drink that the animal has ingested from the feeder placed in the front of the unit, on the left side.
- **C: 0.00** indicates the amount in grams of food or drink that the animal has ingested from the feeder placed in the rear part of the unit, on the right side.
- **D: 0.00** indicates the amount in grams of food or drink that the animal has ingested from the feeder placed in the front part of the unit, on the right side.

Observe that the number shown after the word "INTAKE" is the identifier number that the unit has been assigned.

11.1. **RESETTING**

The weight of a feeder can be reset to zero on the main screen at any time. For example, it is advisable to do so after reloading food. To reset to zero, press the button associated with the feeder.

- Press the  button to reset the weight of the feeder placed in the rear part of the unit on the left side of the equipment to zero.
- Press the  button to reset the weight of the feeder placed in the front part of the unit on the left side of the equipment to zero.
- Press the  button to reset the weight of the feeder placed in the rear part of the unit on the right side of the equipment to zero.
- Press the  button to reset the weight of the feeder placed in the front part of the unit on the right side of the equipment to zero.



WARNING: During the resetting process, avoid vibrations, movements and air currents. The unit has a device for detecting movement. If movement is detected, the resetting process will be delayed until the movement disappears. In this case, other processes will be stopped.

11.2. FRAME POSITION

The Activity Detection system consists of a frame for detecting X-Y movements and two bars for detecting **rearings**. The frame and bars are height-adjustable to adapt to the size of the animal. Frame height is adjusted using the fixing screws located on the sides of the base (see Figure 21).

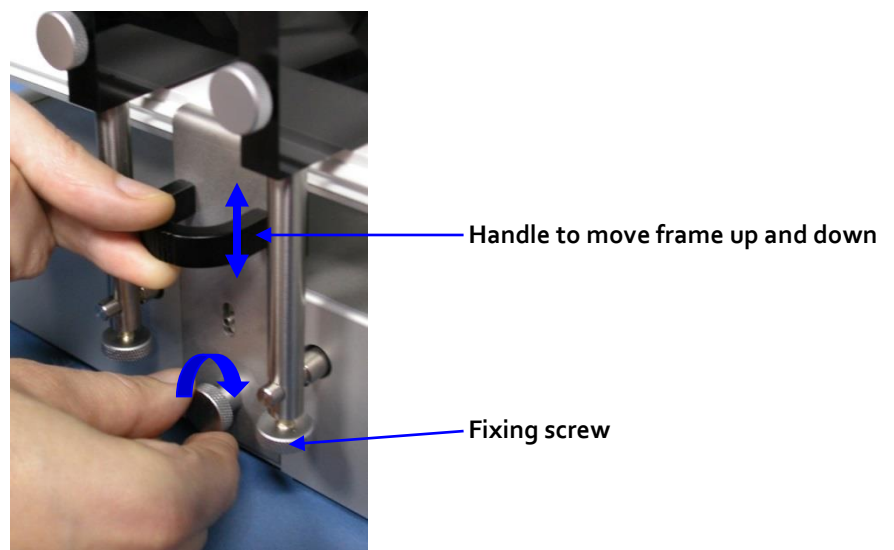


Figure 21. Frame height adjustment.

Bars are height-adjusted by moving them up or down (see Figure 22).



Figure 22. Bar height adjustment.



WARNING: Both bars for **rearing** measurement must be at the same height to work correctly.

12. MAIN MENU














Being on the **Main** screen (see Figure 20), press the  button to enter the **Menu** screen:



Figure 23. Menu screen.

In this menu, the buttons are associated with a function as described in the following table:

Button	Function	Description
	SET	Configuration of the device parameters.
	EXIT	Return to Main screen.
	TEST	Tool to check the IR frame and IR rearing barrier.
	CAL	Calibration of the weight sensors.

The layout of the buttons , ,  and  has been arranged to match the instruction on the screen, at the same height and on the same side. In this case,  will be used to access the **SET** menu,  to **EXIT**,  to access **TEST** and  to access **CAL**.

In the course of these instructions, whenever an instruction is referred to, it will be assumed that the associated button will be the one used, and vice-versa.

12.1. SET MENU

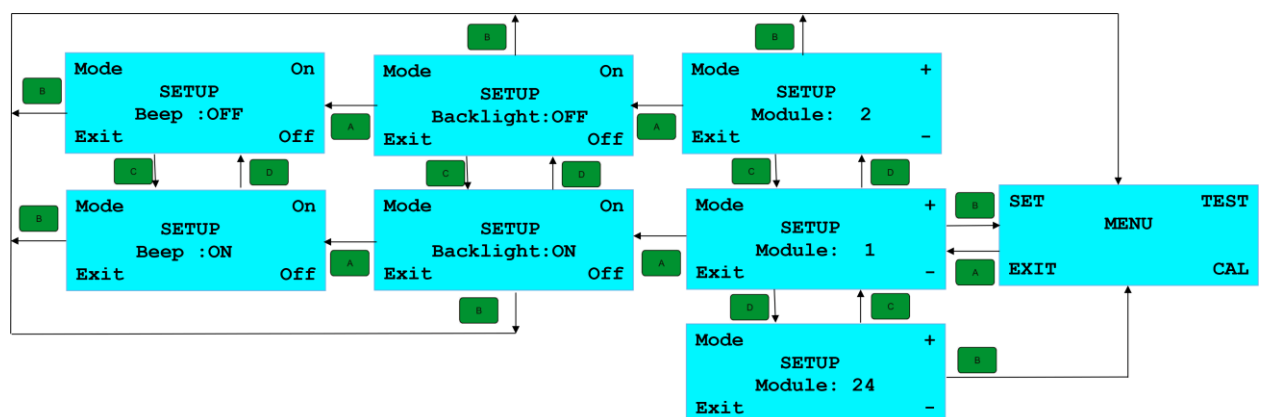


Figure 24. Map of screens in the SET menu.



Being in the **Menu** screen (see Figure 23), press the  button (**SET**) to enter the set-up menu. The display will show:



Figure 25. Set-up screen.



Press the  button (**MORE**) to go through the different parameters that can be configured: **Module**, **Backlight** and **Beep**.

There is complete information about the set-up of each of these parameters in the following sections.

12.1.1. MODULE ID (IDENTIFICATION)

In the SETUP menu, press the  button (**MORE**) repeatedly until the display shows **Module** (see Figure 25):

This menu is needed to configure the system when more than one unit is active and connected to the same computer. In this case, each unit must have an associated identification number (**ID**) that distinguishes it from the rest. The experimenter has 24 numbers available for this purpose. All control units will have the number 1 associated with them by default. If two or more control units have the same number associated, the computer program will not inform of this and nor will any indication appear on the unit displays. However, the experimenter must remember that the system will not work properly in these circumstances. Therefore, make sure that each control unit has a different ID.

To change the module number, press the buttons  to increase the number or  to decrease it.

The assigned number will be shown on the main screen after the word "INTAKE" i.e. INTAKE 3, for module 3.

12.1.2. BACKLIGHT

In the **SET** menu, press the  button (**MORE**) repeatedly until the display shows the word "**Backlight**".



Figure 26. Backlight screen.

This menu option allows the backlight of the display to be turned on or off.

Press the button to turn on the light or press the button to turn it off.

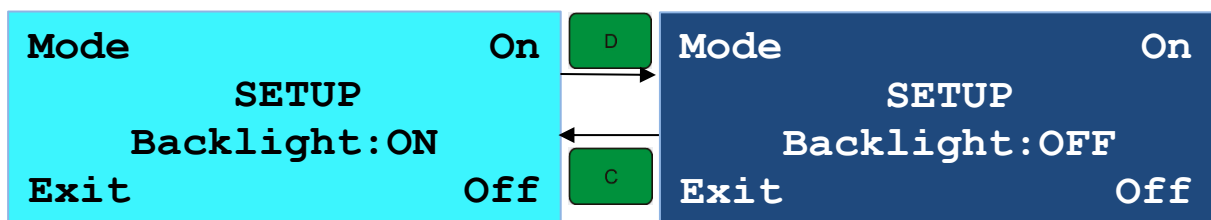


Figure 27. Display Backlight change.

The default value is: **Backlight: ON**.

12.1.3. SETUP SOUND

The pressed-button sound can be enabled or disabled from this menu. To configure the beep sound, in the **SET** menu, press the button (**MORE**) repeatedly until the display shows the word "**Beep**".

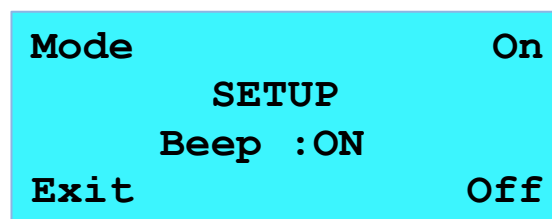


Figure 28. Beep screen.

Enable/disable the BEEP by setting this parameter to ON or OFF.

Press the button to enable the beep or press the button to disable it.

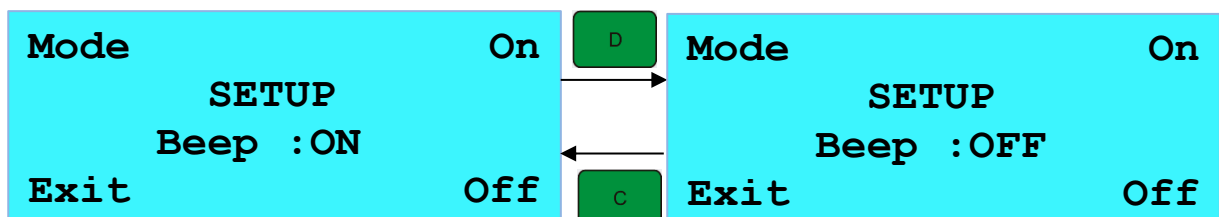



Figure 29. Enable/Disable beep.

The default value is: **Beep: ON**.

12.2. TEST MENU

Being in the **Menu** screen (see Figure 20), press the  button (**TEST**) to enter the test menu. The display will show:

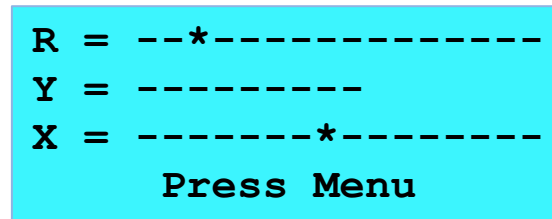



Figure 30. Test screen.

The operation of infrared beams can be checked with TEST. An * indicates that the beam is being interfered with by an opaque body. A — indicates that the beam is reaching the receiver.

- **R:** Is the **rearing** detection. * indicates a beam cut, - indicates a beam not cut.
- **Y:** Is the Y axis. * indicates a beam cut, - indicates a beam not cut.
- **X:** Is the X axis. * indicates a beam cut, - indicates a beam not cut.
- Press the  button to exit to **SETUP** menu (see Figure 25).

12.3. WEIGHT CALIBRATION

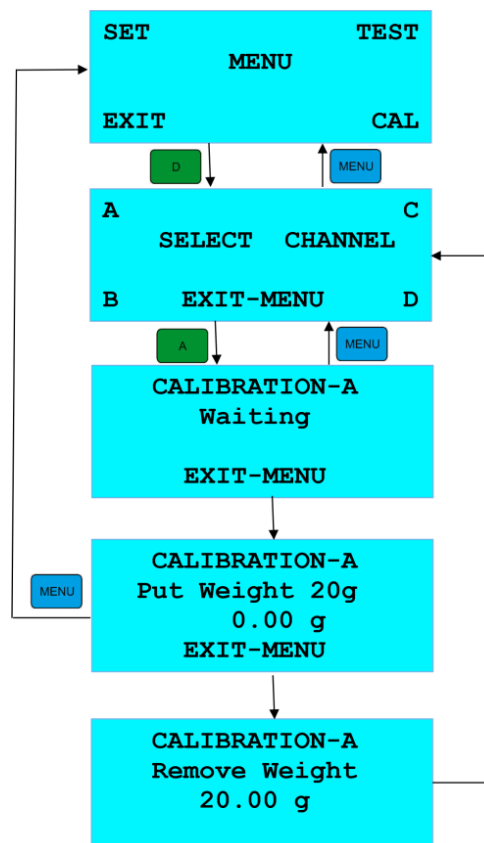



Figure 31. Map of screens in the Calibration menu.

Being in the **Menu** screen (see Figure 20), press the  button (**CAL**) to enter the calibration menu. The display will show:

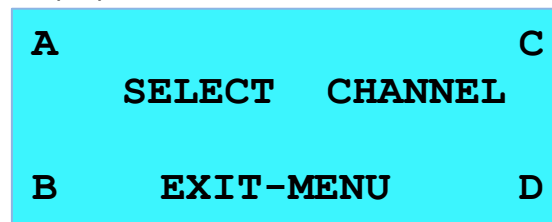



Figure 32. Calibration screen.



WARNING: During the calibration process, avoid vibrations, movements and air currents. The equipment has a device for detecting movement. If movement is detected, the calibration process will be delayed until the movement disappears.

Press the button associated with the feeder to be calibrated ( in this example). The equipment will be newly reset to zero (**Waiting**). After a short time, depending on the stability, the display will show (**Put weight 20g**):

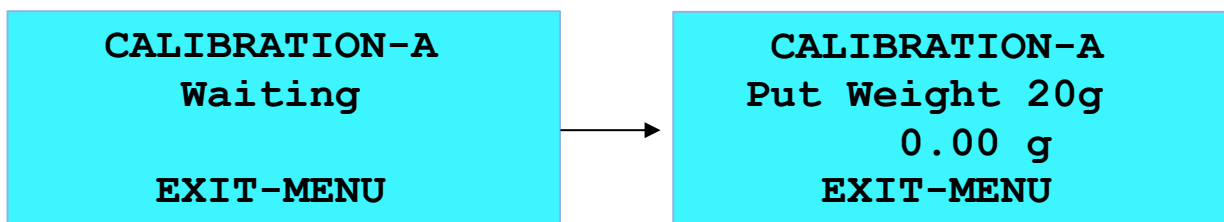


Figure 33. Calibration procedure.

Follow the instructions shown on the display. In other words, put a weight of 20.00 g in the feeder being calibrated and remove it only when the display gives instructions to do so.

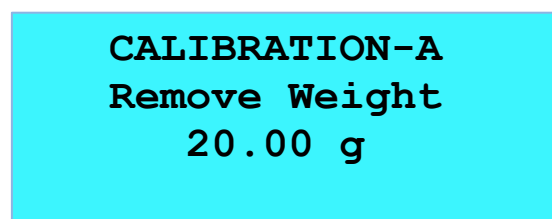



Figure 34. Remove Weight screen.

The program will return to the calibration screen (see Figure 32).



WARNING: If the weight used in the calibration is not equal to 20.00 g the calibration will not be correct. Note that only major differences are detected by the equipment as incorrect reference weights.

This process can be repeated with other feeders. Press the  button to exit to **SETUP** menu (see Figure 25).

13. CLEANING THE EQUIPMENT

13.1. CLEANING THE CAGE

Accumulated urine and faeces in the cage should be cleaned. To clean the cage you can use a soapy solution and rinse with water, then use a dry cloth to dry it.

13.2. CLEANING THE PLATFORM

To clean the top cover of the control unit, a dry cloth or one moistened with alcohol must be used. It can also be cleaned by suction.

13.3. FEEDER CLEANING

The food debris accumulated on the feeder and that on the tray that collects the food that falls from the feeder should be cleaned.

13.4. CLEANING THE BOTTLE

To clean the bottle a soapy solution should be applied, rinse thoroughly and finally be dried with a cloth.

13.5. CLEANING THE FEEDER AND BOTTLE STANDS

You should periodically clean with an aspirator to avoid that chips of food are accumulated.

14. 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"> • Ensure that the voltage of mains is the same as that selected in the fuse holder. • Check the condition of the fuses. • Check the power cord connection.
The equipment starts but remains blocked on the warm up screen.	<ul style="list-style-type: none"> • Check that neither food nor drink feeders are not touching the cage. If so readjust the feeder position. • Check that the load cell axels are not bended. • If the problem follows contact with technical service.
REARING counter does not work.	<ul style="list-style-type: none"> • Check flat cables connection. • Check that both bars are at the same height. • Enter in Test menu and check that none of the IR beams are cut (an * will appear in the display if this happens). See section 12.2. • Take out the cage and check if the beams continue to appear cut. If not, clean the cage. • If the beams continue to appear cut, clean the receivers bar. If the error continues, contact with the technical service.
The backlight in the display is off.	<ul style="list-style-type: none"> • Turn it on as indicated in section 12.1.2 in this manual.
One or several units do not send data to the computer.	<ul style="list-style-type: none"> • Check the connections. See Figure 11 • Check that each unit has a different module number. See section 12.1.1 • Check that all the control units are turned on. If any control unit is turned off this will cut the communications of the control units hanging from the REMOTE port of this control unit and the computer. • Check that ID numbers begin by 1 and are correlative.
Uncalibrated appears on the display	<ul style="list-style-type: none"> • Calibrate the feeder as explained in section 12.3 • Check that the weight used to calibrate is 20gr

PROBLEM	SOLUTION
	<p>± 0.5 g (range between 19.5 g and 20.5 g)</p> <ul style="list-style-type: none"> The table where the equipment is placed must be free of vibration to stabilize the measure.
<p>When food and drink sensors are calibrated , the system is in the phase of "Put 20g weight" and does not reach the stage of "Remove Weight"</p>	<ul style="list-style-type: none"> The feeders or bottles must be properly mounted. Remove the cage while performing the calibration process to facilitate stabilization of the process. Check that pulling from the food bar or the drink bars, they can move and that they are not blocked. If they are blocked or bended contact with technical service.

15. PREVENTIVE MAINTENANCE

	EXPERIMENT	WEEKLY	MONTHLY
CHECK CALIBRATION			<input checked="" type="checkbox"/> ¹
CLEAN THE CAGE	<input checked="" type="checkbox"/>		
CLEAN THE PLATFORM		<input checked="" type="checkbox"/>	
CLEAN THE FEEDER	<input checked="" type="checkbox"/>		
CLEAN THE BOTTLE	<input checked="" type="checkbox"/>		
CLEAN BOTTLE AND FEEDER SUPPORTS		<input checked="" type="checkbox"/>	
CHECK IR SENSOR BARS			<input checked="" type="checkbox"/> ²
CHECK PLACEMENT OF FEEDER AND BOTTLE			<input checked="" type="checkbox"/> ³

¹ Read section 12.3

² Read section 12.2

³ Read sections 9.1 and 9.2.

16. TECHNICAL SPECIFICATIONS

POWER SUPPLY Input voltage: Frequency: Fuse type: Maximum Power: Conducted Noise:	115/230 VAC 50/60 Hz 2 fuses 5mm*20mm 250mA 250V Slow 10W EN55022 /CISPR22/CISPR16 class B
GENERAL SPECIFICATIONS Warm-up time	< 1 minute (under stable weight)
WEIGHT SENSOR Technology: Number of sensors: Measurement range: Resolution: Linearity: Accuracy: Zero tracking:	Load cell 4, one for each feeder 0-600 g 20 mg 0.03% +/- 0.005% F.S. Automatic
ACTIVITY Technology: Lower frame: Upper bars: Maximum space between beams:	Infrared beams 16 x 9 beams 16 beams 15 mm
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
SERIAL OUTPUT Type: Baud rate: Frame: Main Connector: Remote Connector:	RS232C 19200 1start bit + 8 bits data + 1 stop bit Sub D 9 female Sub D 9 male
DIMENSIONS MOUSE MULTITAKE: Width x Height x Depth: Weight: RAT MULTITAKE: Width x Height x Depth: Weight:	480 x 270 x 320 mm 8,73 kg 615 x 485 x 335 mm 11,2 kg

**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**

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

Marca / Brand / Marque: **PANLAB**
 Modelo / Model / Modèle: **LE001PH**

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)
2011/95/EC 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: **EN61010-1:2010**
 EMC: **EN61326-1:2013 Class A**
 Safety of machinery: **EN ISO 12100:2010**

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

Canalís

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.