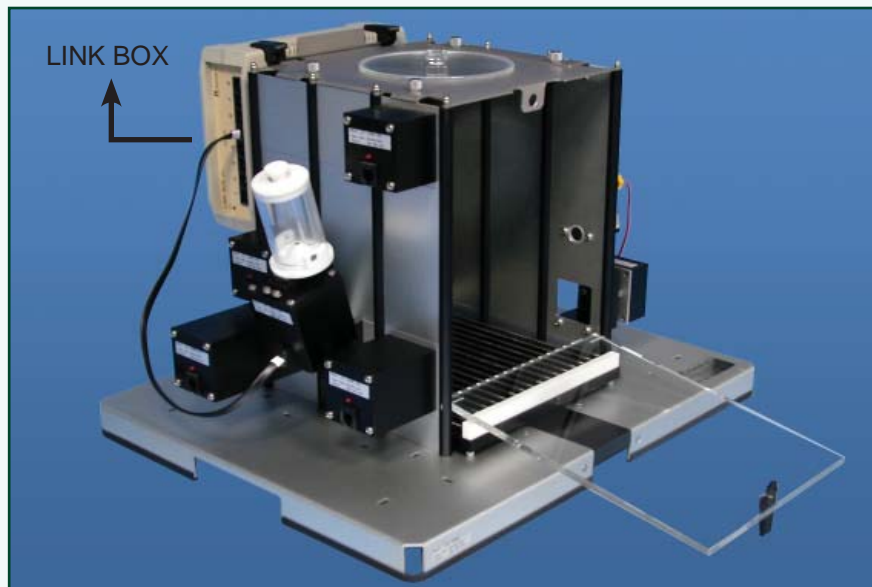


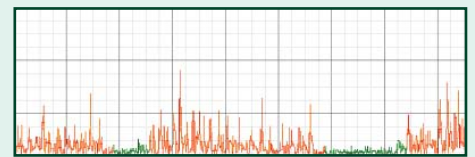
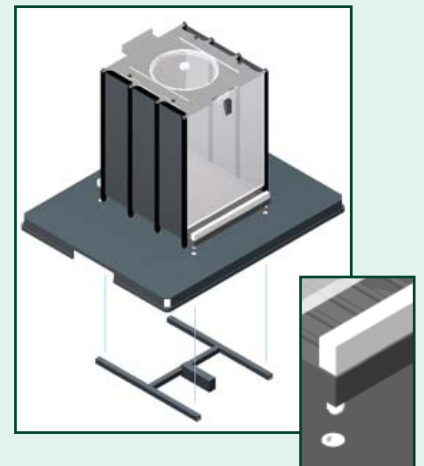
# Modular Operant Behaviour

## LE 1000 Full Modular Experimental Chamber

- Made in a totally modular structure, allows its complete disassembling.
- They can be converted from Rats Chambers to Mice Chambers at a small cost .
- The frontal door offers a total accessibility inside the chamber.
- Walls and cover can be of different material or color, since they are totally removables.
- Link Box can provide power for up to 8 (expandable to16) Operant Modules (Levers, Light, Dispensers, ...) conferring to the chambers a full autonomy.
- Only one cable joins the Link Box with the Programmers or other Chambers (Software).



The Cages can be equipped with a grid load transducer in order to record activity or freezing.



Dimensions	Base
LE 1005 (Rats): 25 x 25 x 25 x 3 (h) cm	44 x 36 x 3.5 cm
LE 1002 (Mice): 20 x 20 x 25 x 3 (h) cm	44 x 36 x 3.5 cm

### CHAMBERS MODEL

#### MODULAR CHAMBER LE 100X

It has to be completed with OPERANT Modules.

Basic set cage:

- LE 100 X Cage with modular plates
- LE 100 X-01 Shockable Grid
- LINK BOX -01 Link & Power for up to 8 Modules

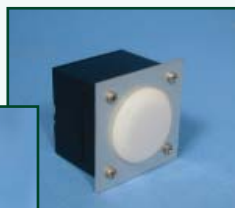
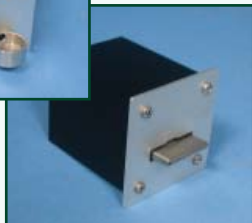
#### COMPACT CHAMBER 100X CP/CL

Cage equipped with Lever, Light, Shockable Grid, LINK BOX, and:

- Model CP Pellet Dispenser
- Model CL Drop Dispenser

For Rats X=5 and for mice X=2

## Operant Modules



These accessories comprise the Operant Modules to incorporate in the Modular Chambers, according to the user's needs.

LE 100 X-65 Lever  
 LE 100 X-66 Lever (Adjustable & recordable force)  
 LE 100 X-64 Retractable lever

LE 100 X-67 Light stimuli  
 LE 100 X-67/7 Variable Light stimulus  
 LE 100 X-90 Buzzer stimulus  
 LE 100 X-91 Loudspeaker  
 LE 100 X-43 Noise generator (White noise)

LE 100 X-50 Pellets dispenser with feeder  
 LE 100 X-51 Feeder with photoelectric detector of access  
 LE 100 X-53 Feeder with mechanical detector of access  
 LE 100 X-60 Liquid dispenser (drops)  
 LE 100 X-52 Photoelectric liquid access detector  
 LE 100 X-61 Liquid dispenser (spoon)

LE 100 X-62 Bottle for electrical drink meter  
 LE 100 X-70 Modular control for electrical drink meter  
 LE 100 X-69 Photoelectric drink meter  
 LE 100 X-68 Fixed bottle

For Rats **X=5** and for mice **X=2**

### Self Administration Accessories

LE 1010 Harness Set for Eletrical Stimulation  
 LE12605 Eletrical Stimulator

LE1015 Harness Set for Drug Adminidtration  
 LE1018 Razel Pump  
 LE1020 Pump Control

## Controlling the Operant Chamber

### Basic System with LE 85XCT

The LE 85XCT allows the Modular Chambers to be controlled for carrying out the basic schedules of the Operant Conditioning. It's connected to the cages by only two cables: one for signals control, the other for the shock. Programme selection is done very simply and immediately by using the frontal controls.



LE 85XCT  
 Dim: 29 x 25 x 14 (h) cm  
 Weight: 8 Kg

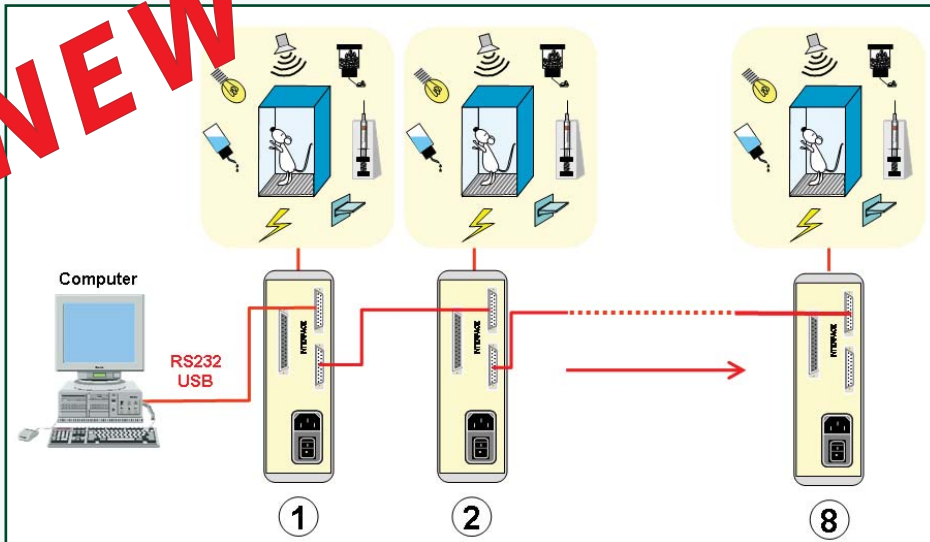
LINK BOX

LE 100X  
 (Operant Chamber)

- Electronic counting of Responses and Reinforcements
- MPS programme (Manual, Continuous or Discriminated Reinforcement)
- Extinction, Discrimination and Negative Reinforcement Schedules
- Ratio, Interval and D.R.L.fixed schedules
- Selectable Ratio from 1 to 99 responses or seconds
- Aversive conditioning (Shock adjustable between 0 and 2 mA)
- Electronic scrambler

## Advanced System Via Software

**NEW**



From 1 to 8 Cages can be connected to the computer. As the transmission use serial connections, interface and installation of PCI card into the computer are not necessary.

Only one connexion is needed between each Chamber that are successively connected with the last connection to the computer (PC or notebook) using the RS232 port.

## PACKWIN Software

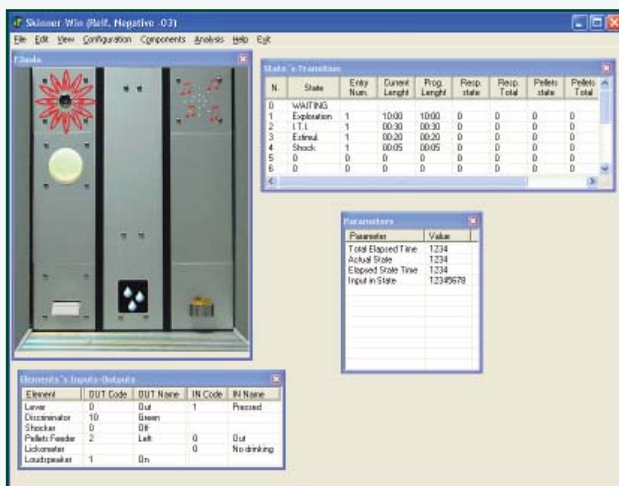
PACKWIN is a Software package developed for the Window platform that provides control for up to 8 Skinner Boxes, even when different protocols are used for each one. It is also possible to define other behavioural trials to be programmed in and run on other non-operant Experimentation Boxes.

The Software is easy and intuitive to use: its commands and instructions are directly associated with the specific function assigned to them in experimental, non-IT terms or jargon.

PACKWIN can also be supplied to order using GLP directives and instructions (GLP option).

It is basically comprised of three parts:

1. TEST. Enables immediate and reliable checking of the functioning of all the elements of the Skinner Boxes.



2. QUICK START. Enables the execution of Basic programmes of Operant Behaviour in a quick and simple fashion:

- Fixed and variable ratio
- Fixed or variable interval
- Fixed or variable DRL.
- Negative Reinforcement
- Extinction

All of the above, with or without the automatic presence of Discriminative stimuli (light or sound).

3. STATE START. Allows the user to configure a specific programming in-line with the functioning protocol best suited to end-goals.

Editing is done using the combination of or linking together of Associated states with clearly defined Behavioural situations and allow for highly advanced research programmes to be mapped out. Conflict, Matching to Sample, Progressive or multiple Discrimination, DMTS programmes, among others, are some of the examples of the broad ranging possibilities provided by STATE START

The Software can also be supplied already edited with the client's programme written in (customisation).

All data are stored in RAW and ASCII file formats, easily exportable to the most commonly used spreadsheets (Excel, ....)

## Accessories

### LE 100-26 Shocker

The LE 100-26 is an electric shock generator, to be applied generally to the bars of the floor grid of the Experimentation Cages. The electric shock is made of rectangular current pulses switching consecutively over 6 bars (scrambler). Current is isolated with respect to ground, as a basic safety precaution to avoid electrical interference with other equipment. The output current depends entirely on the value selected by the user and not the resistance of the animal or the number of bars it is touching when it receives the electric shock, thereby ensuring that the repeatability of the electric shock is maximised. The time duration of the electric shock is also adjustable.

Shock: rectangular pulses of 8.3m sec width  
Frequency: 20Hz  
Intensity: adjustable from 0 to 2mA, over 150k Ohms  
Time: adjustable from 0.1 to 9 sec.  
Dimensions: 29 x 25 x 7(h) cm



### LE 100-35 DRINKMETER



The LE 100-35 is a unit that counts the number of times the animal laps the teat of a bottle when drinking (LE 300-62). The sensitivity of the animal's lap can be adjusted, that is, the length of time of tongue-teat contact required to count it. Detection of the animal's lap is carried out by the completion of an electrical circuit (via the floor-grid), through which flows a current of no more than 2uA, which the animal is totally unable to feel. An output allows electrical pulses representing these laps to be sent to other peripheral devices, such as printers or computers. The Letica Shock Generators can also be connected to the Meter to give the animal shocks.

### LE 100-226 AUDIO GENERATOR

Acoustic generator of sinusoidal waves with output to the LE 300-91 Loudspeaker Module. The frequency and intensity of the acoustic stimulus is adjustable.

Frequency: selectable from 20 up to 20,000Hz, in three ranges  
Intensity: adjustable between 60 and 120dB



### LE 100-23 AUDIO-CLICK



Acoustic generator of Clicks, with output to the LE 300-91 Loudspeaker Module. The number of clicks per second, their frequency and sound level can be adjusted.

Clicks/sec.: adjustable from 1 to 1.000 in three ranges  
Frequency: adjustable from 300 up to 3,000Hz  
Intensity: adjustable from 60 to 120dB

## Soundproof Box LE 26

The Soundproof Box ensures that the Skinner Boxes are insulated from sounds, lights and exterior shadows. Made with an aluminium structure and fitted with a frontal entrance with a large transparent red glass view port to reduce vision from the inside the LE 26 Box.

It has an acoustic attenuating capacity of more than 60dB and is fitted with a ventilator that, aside from replenishing the interior air supply, also produces a constant background noise. The Box is lit with an incandescent 40W light the brightness of which is adjustable to the user's requirements by means of an electronic regulator.

Dimensions	Internal	External
	60 x 41 x 48(h) cm	66 x 54 x 54(h) cm

