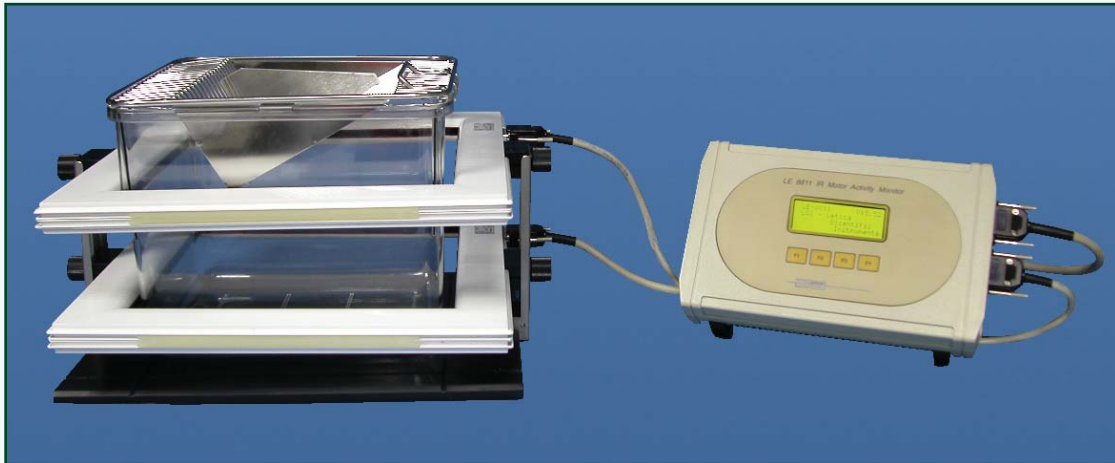# IR Actimeter System

To Measure Spontaneous Activity by Means of Photoelectric Beams   LF0802B

The Panlab Infrared (IR) Actimeter represent an ideal tool for assessing locomotor activity and exploration in rodents. The system represents a reliable system for easy and rapid drug screening and phenotype characterisation in both day and night lighting conditions.

The IR Actimeter system is basically composed by 1 or 2 square frames, a frame support and a control unit. The system is available in four models:

LE 8811 : Double IR frame system for Rats and Mice
LE 8810 : Double IR frame system for Mice
LE 8812 : Single IR frame system for Rats and Mice
LE 8809 : Single IR frame system for Mice

The system is completely modular; each frame may be used for evaluation of:
• General activity (one or several animals),
• Locomotor and stereotyped movements
• Rearings
• Exploration/curiosity (nose-spoke detection in the hole-board option).

The Frames (photo beam sensors) are independents and can be used separately to control two cages. (see image below)

Besides, a series of accessories can complement and expand the possibilities of the System.

Frames
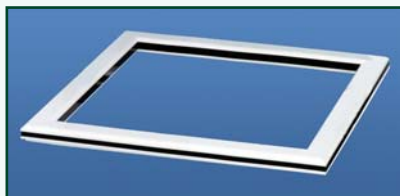
FRAMES are equipped with 32 infrared photocells, 16 placed in axis X and 16 placed in axis Y. The Photocell work at a wavelength of 950 nm and its information is multiplexed at a rate of 40Hz.

Reference	Subject	Beams	Spaced	Dimension (internal)
LE 8815	Rat & Mice	16 x 16	25 mm	45 x 45 cm
LE 8816	Mice	16 x 16	13 mm	25 x 25 cm

Control LE 8825

- Controls up to 2 Frames
- Stores the data
- Up to 200 intervals of 1 hour can be programmed
- Ready to be used in sterile rooms and afterwards transfer gathered data to a PC
- RS232 (USB) Communication
- SEDACOM software for data transfer to a PC or laptop

General Features

Up to 15 levels of motor sensibility can be selected in order to adapt the frames to the typology of the animal (rats, mice ...).
The system gives data about:

- Fast and slow movements (user-defined threshold)
- Fast and slow stereotypies (user-defined threshold)
- Number of fast and slow rearing (user-defined threshold)
- Number of fast and slow nose-pokes in the hole-board test

The system can check the photoelectric beams in order to ignore those beams that are obstructed by objects (e.g. the walls of a cage).

IR System Linkage
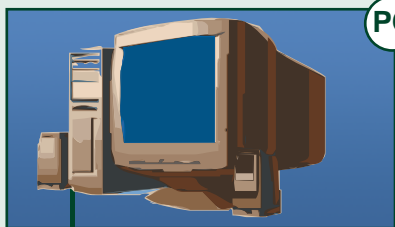
PC The frames can be controlled by the independent control units. A computer is only needed for data storage and analysis or for obtaining specific data related to the animal trajectory using the Actitrack software.
No need of PCI Card: only one cable joins the different IR Actimeter units with the last one directly linked to the computer and associated software thought the RS232 Serial Port.
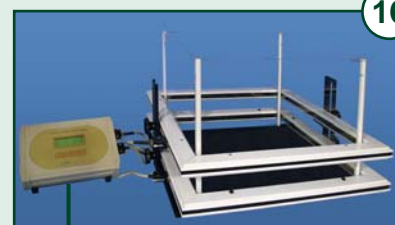
RS 232 USB
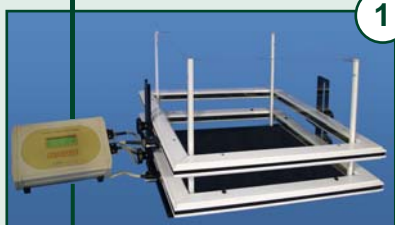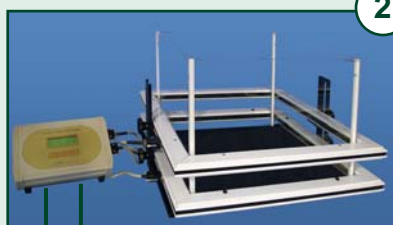
1   2 (...)   16

(...)

Working with SEDACOM Softaware (Free cost)

SEDACOM is a data translate software from LE 8825 Control to Computer in ASCII format so that the results can be easily exported to any statistical program.

Two Frame as Actimeter In two cages

Activity and Rearing

Hole Board and Activity

Accesories

Frames Support
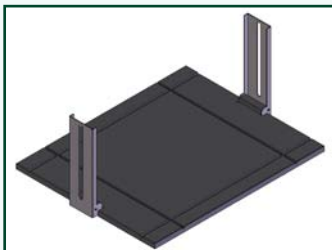
The height of the frames can be adjusted from 3 to 20 cm

Rats: LE 8817 (big frame)
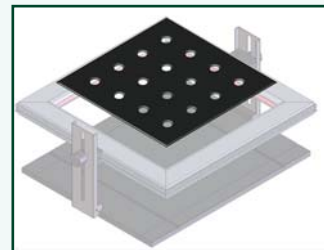Mice: LE 8818 (smal frame)

Hole Board

Plate with 16 holes of diameter 2.4 cm, distant 12.7 cm and detection depth 1 cm

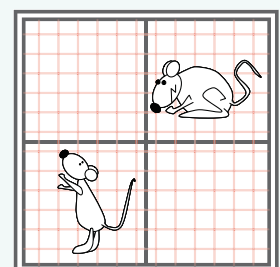Rats: LE 8820
Mice: Not Avalible

Arena

Height: 350 mm

Rats: LE 8814
Mice: LE 8813

Double Arena

Allows working with two isolated subjects.
Needs Acti-Track Software

Rats: LE 8814
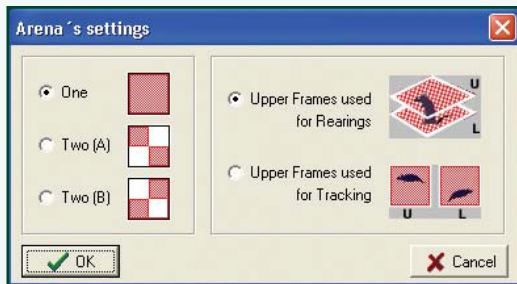Mice: LE 8813

Acti- Track Software

for up 32 Frames

The Atitrack software discriminates and analyses frequency and number of IR beam breaks to convert it in a track file that can be analysed later for generating reports. Thus ActiTrack provides much more integrated and precise data in terms of animal activity, position, displacements and rearings than those provided by the SeDaCom software.

The Actitrack gives data about:

- Travelled distance (and %) into user-defined zones
- Max., min. and mean speed
- Time (and %) moving fast, slow and resting
- Permanence time (and %) into user-defined zones
- Number of Entrance into user-defined zones
- Number and mean duration of rearings
- Number of Clockwise and counter-Clockwise turns
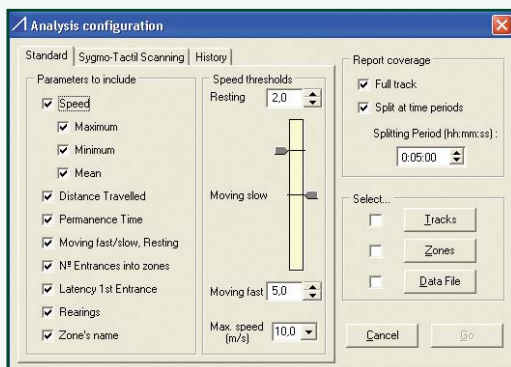- Track history analysis
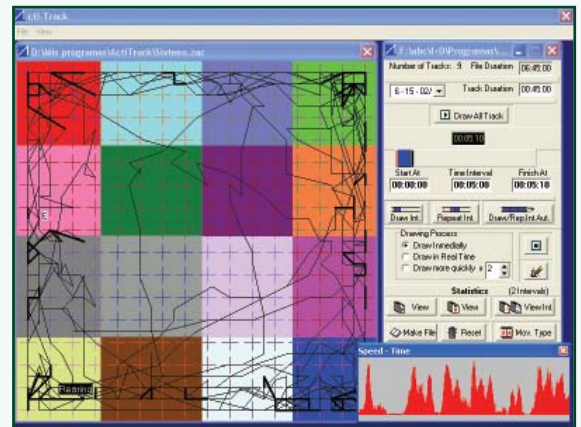
Analysis of the trajectories in predefined zones and localization of the rearings.

Standard results presentation.

Configuration of 1, 2 or 4 independent arenas for each set of frames.

Several kinds of analysis can be performed, and the parameters of the analysis can be selected at will. Besides, the user can select the analysis to embrace the whole of trajectories or different intervals of it.

Example of how the results of the transitions between zones analysis look.