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**DRINKING – CONFLICT TEST**

**& LICKOMETER**

**Cat. No. 4 5 1 0 0**



**INSTRUCTION MANUAL**



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# INSTRUCTION MANUAL

## DRINKING – CONFLICT TEST & LICKOMETER

Cat. No. **4 5 1 0 0**

Series No. \_\_\_\_\_ Mfg. date \_\_\_\_\_

### ***SAFETY CONSIDERATION***

ALTHOUGH THIS INSTRUMENT HAS BEEN DESIGNED WITH INTERNATIONAL SAFETY STANDARD, THIS MANUAL CONTAINS INFORMATION, CAUTIONS AND WARNINGS WHICH MUST BE FOLLOWED TO ENSURE SAFE OPERATION AND TO RETAIN THE INSTRUMENT IN SAFE CONDITIONS.

SERVICE AND ADJUSTMENTS SHOULD BE CARRIED OUT BY QUALIFIED PERSONNEL, AUTHORIZED BY UGO BASILE ORGANIZATION.

ANY ADJUSTMENT, MAINTENANCE AND REPAIR OF THE OPENED INSTRUMENT UNDER VOLTAGE SHOULD BE AVOIDED AS MUCH AS POSSIBLE AND, WHEN INEVITABLE, SHOULD BE CARRIED OUT BY A SKILLED PERSON WHO IS AWARE OF THE HAZARD INVOLVED.

CAPACITORS INSIDE THE INSTRUMENT MAY STILL BE CHARGED EVEN IF THE INSTRUMENT HAS BEEN DISCONNECTED FROM ITS SOURCE OF SUPPLY.

Instruction Manual dated April 2008  
Revision 1



# *DRINKING - CONFLICT TEST & LICKOMETER*

*Cat. No. 4 5 10 0*

## ***NEW INSTRUMENT, featuring:***

- *Up to 5 animal chambers with grid floor, lick sensor, water reservoir and two-pole shockers with adjustable shock intensity*
- *Software for experiment configuration (duration, initial pause, time intervals with and without shock, number of licks to deliver a shock, etc.) and data collection*
- *Chambers can be used as a general lickometer*



***Vogel Conflict Test***

***Lickometer***

***Anxiety Testing***

***Multiplex Chambers***







# DRINKING – CONFLICT TEST

Cat. 4 5 1 0 0

## 1 INTRODUCTION

The Ugo Basile “Drinking – Conflict test ver 2.0” allows to run up to 5 cages for quantifying licking events associated to the animal drinking.

The test is composed of three phases:

- Initial wait (triggered by the first licking event)
- Shock phase (the sipper is electrified)
- No-shock phase (no shock is associated to drinking)

The duration of each phase is user-defined for each cage based either on time or on the animal behaviour (i.e. the sipper is electrified after a defined number of licking events have occurred); at the end of the test a report will summarize the results; these results can be automatically printed and exported into a spreadsheet.

For each phase of the experiment, the number and the timing of licking events is recorded and graphically displayed.

The alternation between shock and no-shock phase can be based on TIME or N° OF LICKS, according to the user experimental paradigm.

When no shock is delivered, the system can be simply used as a software-driven lickometer.

### 1.1 Components

The system is composed of:

- USB-Control Unit (control up to 5 cages ; control unit for 8 cages is available on request)
- Drinking Conflict Cage with grid floor, electrified sipper and lick sensor
- “Shocker Sine Wave Two Poles”
- Connecting cable from Shocker to Control Unit
- Connecting cable from Shocker to Cage
- Power Cable, user manual and Software CD



## 1.2 Hardware Set-Up

- Connect the connecting cables to the Shocker (one for each cage) and the Control unit



Fig 1: back panel of Shocker (above) and Control Unit (below)

- Use the other connecting cables to connect the Shocker (one for each cage) and the cage



Fig 2: front panel of Shocker (above) and Control Unit (below)



- Connect the power cable
- Attach the alligator clip to the screw underneath the bottle (see Fig 3)
- After installation of the software (see following paragraph), connect the USB cable to the PC; the new hardware will be found and appropriate drivers will be automatically installed



Fig 3 – Alligator clip is connected to the bottle

### 1.3 Software Installation

- Do not connect the USB cable to the PC yet (first, install the software, then connect the control unit to the PC; by doing this Windows will automatically recognize the drivers and no manual installation of the drivers will be required)
- From the CD, double click the setup.exe file and simply follow step by step instructions on screen
- Connect the USB cable to the PC and let Windows OS automatically install the new device



## 2 SOFTWARE

### 2.1 Launching the software

From the Windows “Start” menu, launch the program, according to the following directory:

PROGRAMS → SHOCKER FOR DRINKING–CONFLICT TEST → SHOCKER FOR DRINKING – CONFLICT TEST ver 2.0”

From the initial Window (Fig 4), click on “File”, “Enable Cages” to select the chambers to use for the experiment (Fig 5)

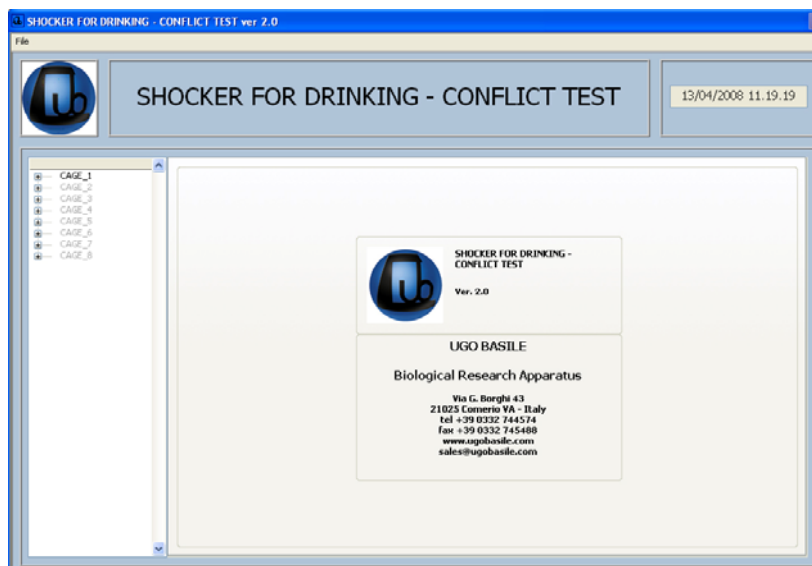


Fig 4 – Initial Window

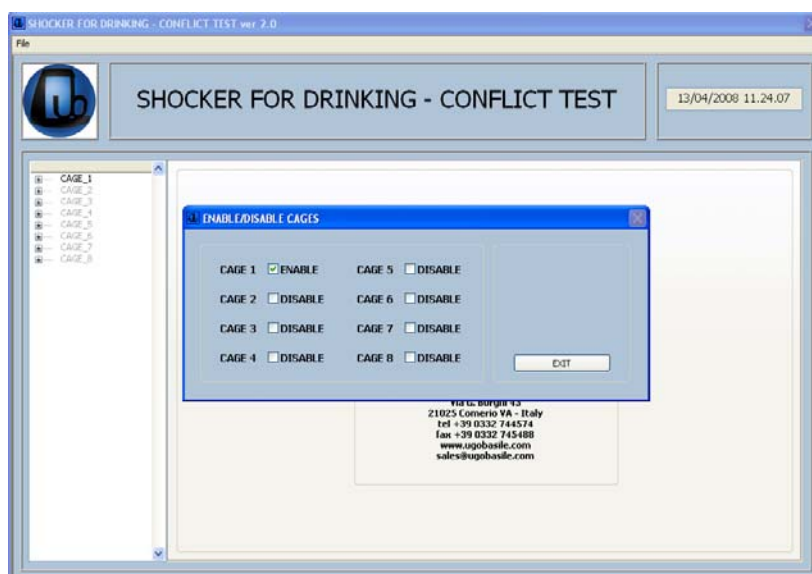


Fig 5 – Enable cages



## 2.2 Experiment configuration

Once one or more cages have been activated, they can be configured according to the desired experimental procedure.

The experiment is divided into trials; at the end of each trial there will be a pause of adjustable length, before the beginning of the next trial.

Each trial is composed of an initial latency phase (initial wait), which precedes the actual start of the test and the alternation of shock and no-shock phases.

At the end of the experiment a complete report file of the raw data is saved as a .csv file and as a .rpt file (the latter is a proprietary format and can be opened only with the software described here).

The configuration menu is accessed by clicking on “Experiment” in each cage, as shown in Fig 6 (it is possible to configure only the first cage and then apply the same configuration to all cages, by clicking “Copy to other cages”).

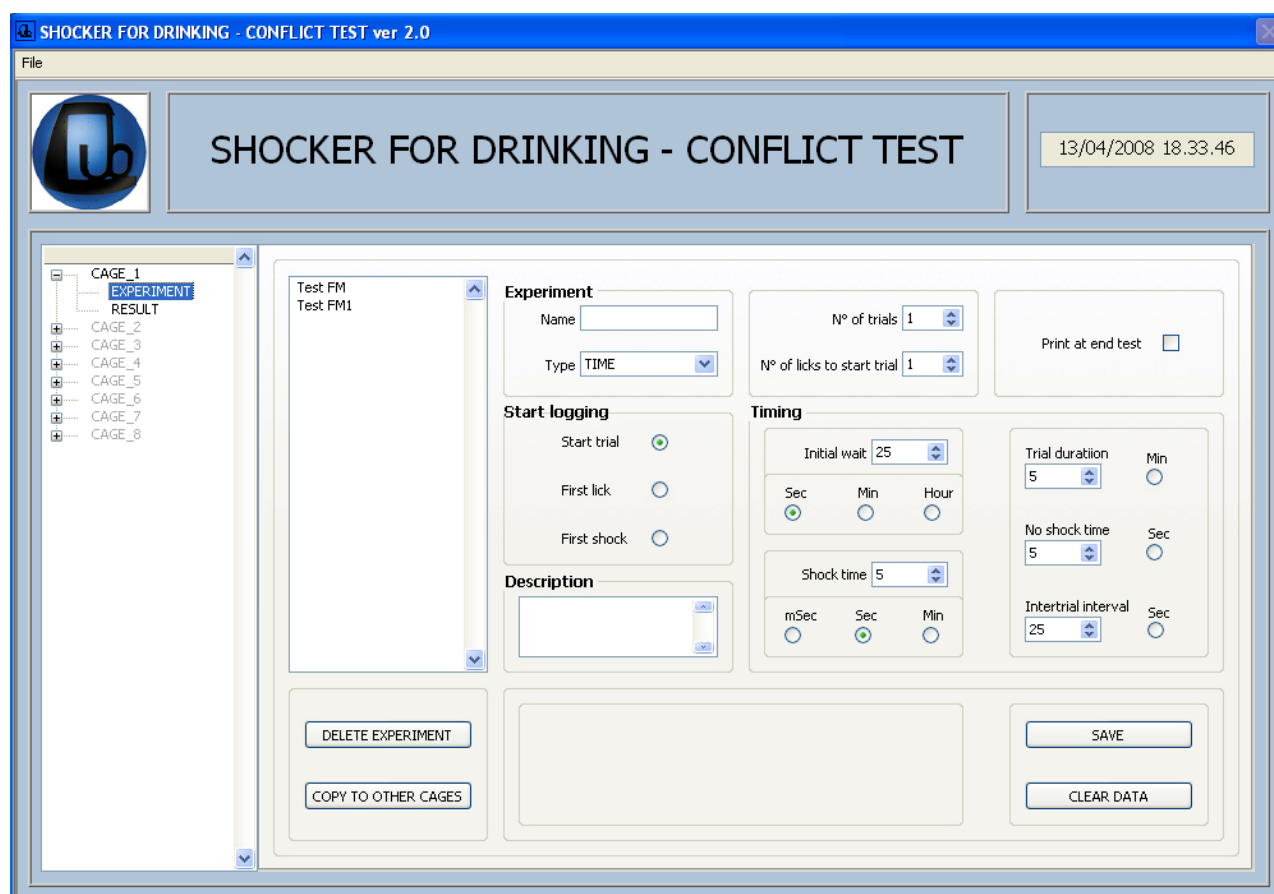


Fig 6: Experiment configuration

The following parameters allow the full configuration of the experiment to be run in each cage (Fig 6):



- EXPERIMENT NAME: file name of the experiment configuration, which is then added to the experiment list in the box on the left side of the screen. The saved configurations can then be loaded simply by left-clicking on their name)
- TYPE: two choices are possible to choose the two types of experimental paradigm, "TIME" or "n LICKS"
  - TIME: after an initial wait of adjustable length, the animal is presented to alternating periods with and without shocks associated to the sipper.  
*Example:*  
By setting an experiment with 1 minute alternations, during minute 1 the animal can drink with no shock, during minute 2 it gets shocked whenever it drinks, during minute 3 it can drink whenever with no shock, and so on until the end of the experiment.
  - n LICKS: after a certain number of licks ("N° of licks to shock"), the animal will be exposed to the drinking shocks for all the following drinking events that occur within a certain period of time ("Shock Time")
- START LOGGING: the data start to be logged (i.e. saved) at the beginning of the trial, at the first lick or at the first shock
- INITIAL WAIT: first phase, which precedes the alternating Shock/No-Shock phases (0-8 hours; 25" is default)
- SHOCK TIME: duration of the phase during which the sipper is electrified (0-60'; 5" is default)
- NO SHOCK TIME / N° OF LICKS TO SHOCK: depending on the experiment paradigm selected in the "TYPE" menu, the user can set the duration of the phase with the sipper not electrified (NO SHOCK TIME) or the number of licks after which the sipper is electrified (N° OF LICKS TO SHOCK)
- TRIAL DURATION: duration of each trial (0-8 hours; 5' is default)
- N° OF TRIALS: number of trial which constitute an experiment
- N° OF LICKS TO START TRIAL: each trial (hence, its alternating phases) can start after a preset number of licking events have occurred
- INTERTRIAL INTERVAL: time interval between two consecutive trials (0-60'; 25" is default)
- PRINT AT END TEST: by checking this box, the report of results is automatically printed at the end of the test
- CLEAR DATA: all configuration parameters are set back to default values

Once the configuration of the cage is complete, click "Save"

## 2.3 Running a test

From the menu in the left box, click on the desired cage number (Fig 7).



From this window it is possible to assign a specific name to the report, to the operator and to the animals involved in the experiment; sex and weight of the animals can also be specified.

The data input here will be presented in all the saved reports.

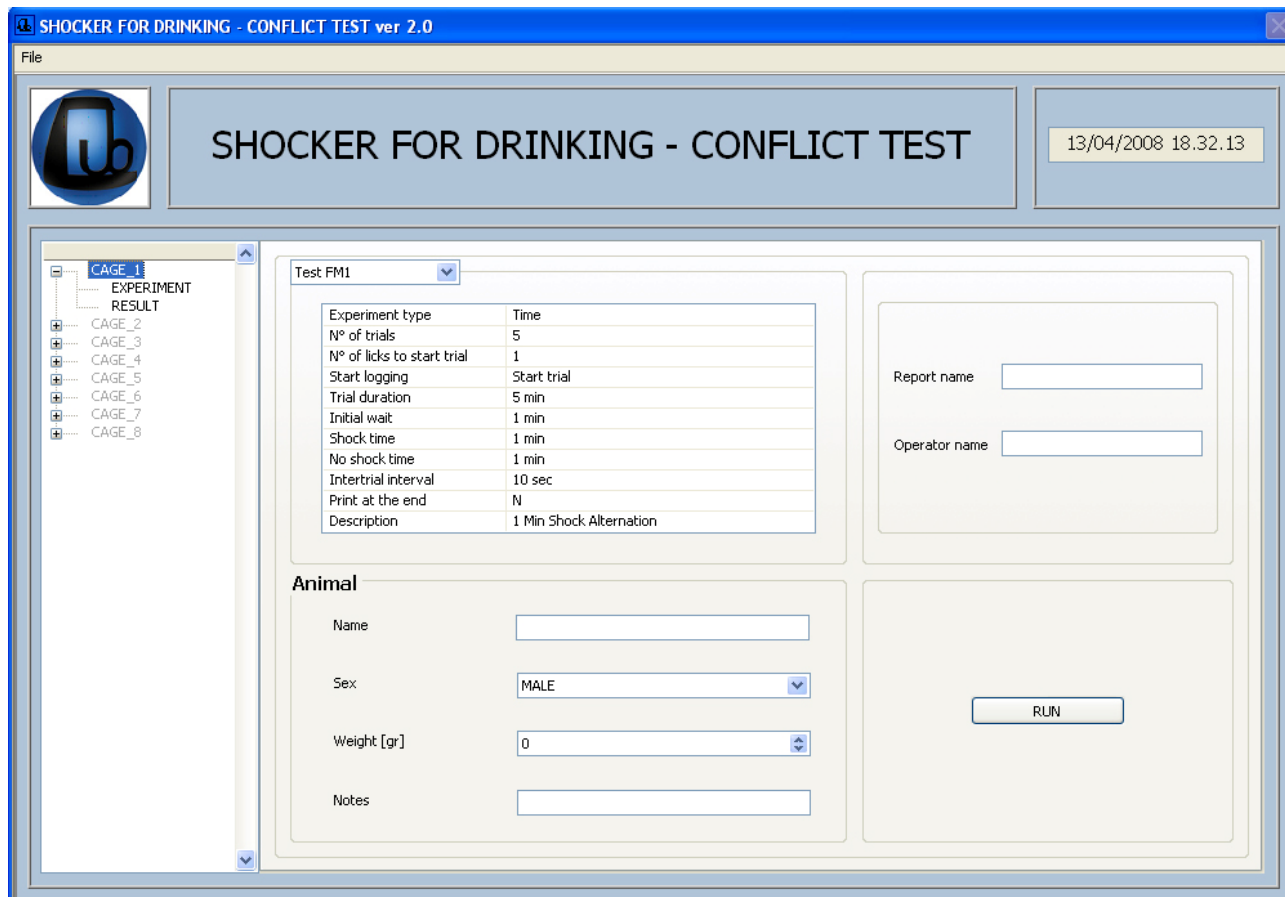


Fig 1 – Experiment details and “Run” Window

Click on the “RUN” button and the experiment will be triggered (as shown by the “WAIT TO START INDICATION”, Fig 8).

The experiment will now start once the “Start” button is pressed in the shocker front panel



Fig 8 - Test waiting to start

Put the animal in the cage; from this moment, the first licking event will trigger the actual beginning of the test (i.e. the beginning of the “INITIAL WAIT” phase; Fig 9).

When this occurs, the status of the corresponding cage will become “INITIAL WAIT”.

In the “REMAINING TIME” box, the countdown will start, indicating the time to the end of the test.

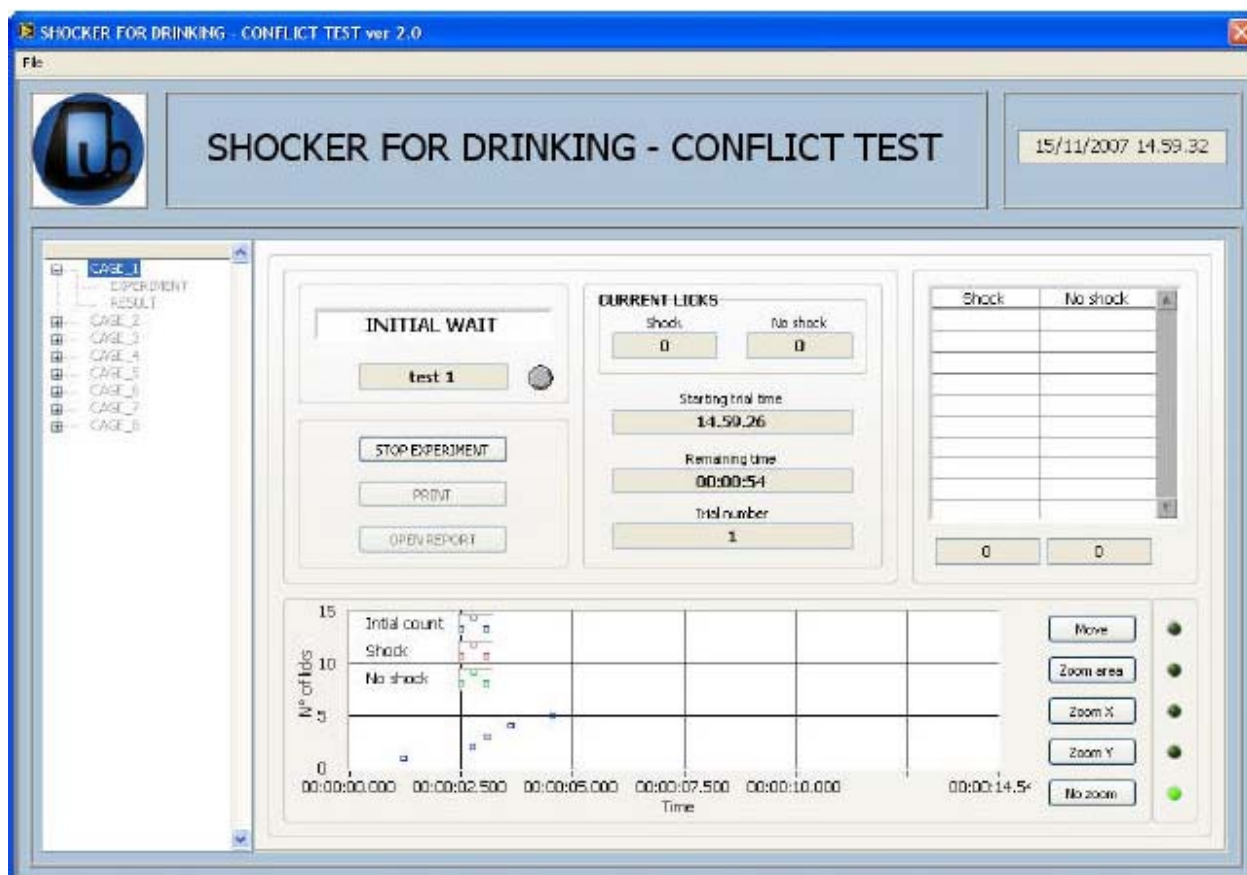


Fig 9 - Test running (Cage 1 is in the "INITIAL WAIT" phase)

After the "INITIAL WAIT" phase , which occurs only once, the status will alternatively change between "SHOCK" and "NO SHOCK" (Fig 10), according to the experiment configuration.

At the end of each phase, the number of licking events occurred are added to a line in the data box on the right of the window shown in Fig 10.



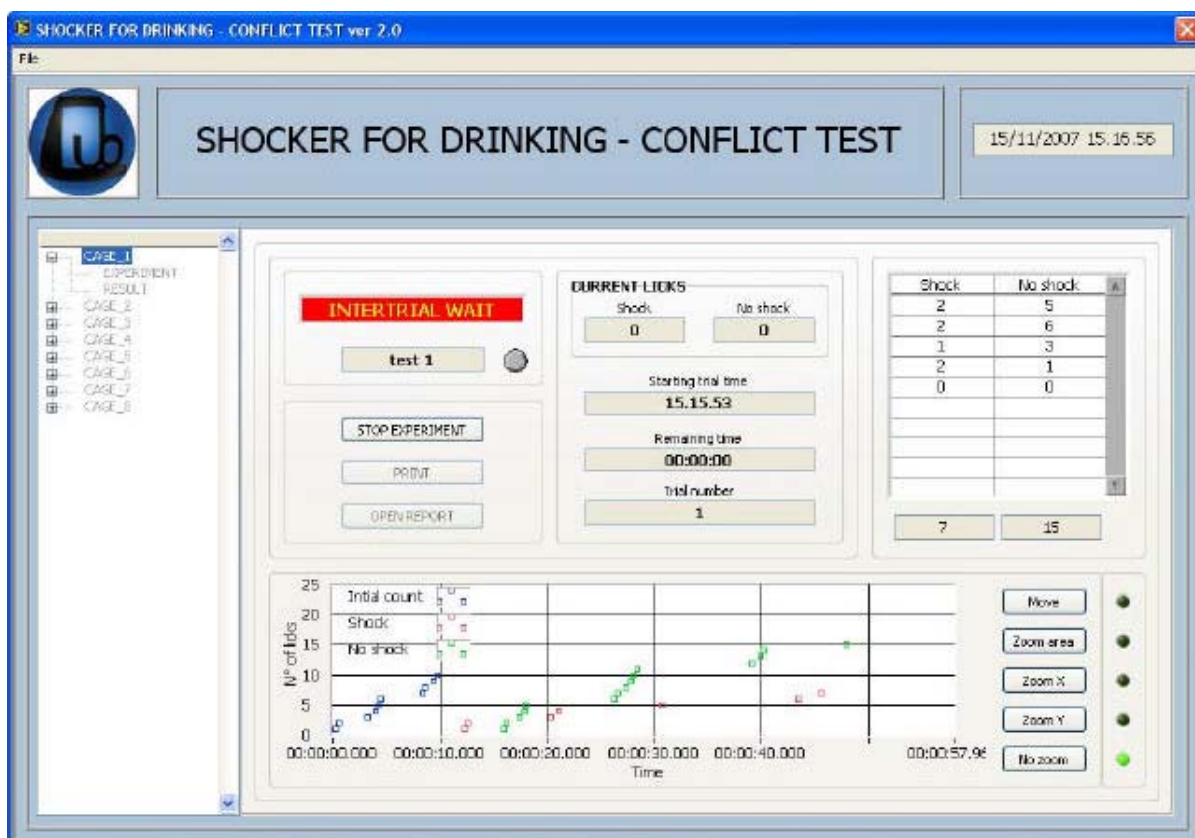


Fig 11: Intertrial Wait

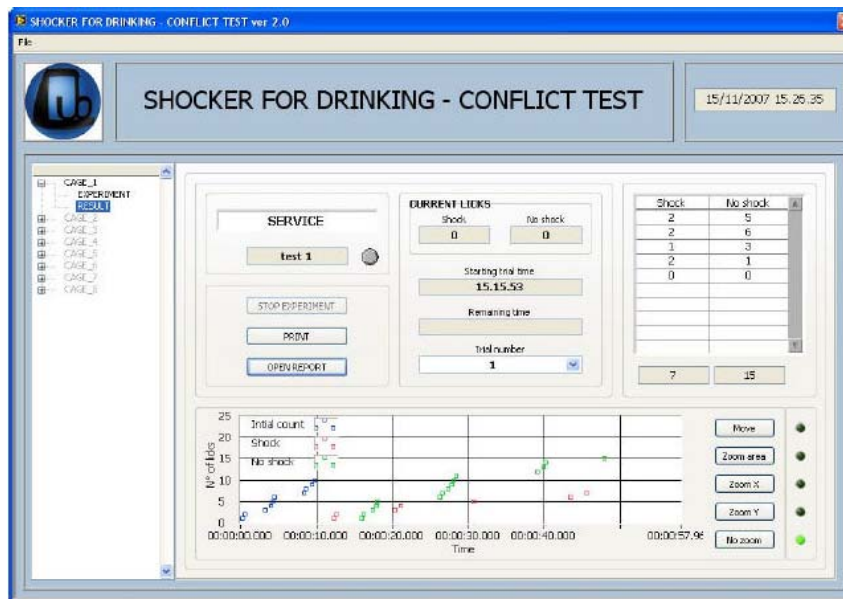
The test can be stopped at any time, by pressing the “Stop Experiment” button.

The test stops automatically when “REMAINING TIME” reaches zero

At the end of the test, the file is automatically saved, using the file name specified during the configuration phase and setting up the experiment

## 2.4 Experiment results and Visualization of data

By clicking on the “Open Report” button, the automatically saved data can be loaded for each cage (Fig 12) and for each trial, by accessing the “Trial Number” menu (this menu was not accessible during the experiment).



**Fig 12 Experiment results of Cage 1, trial 1**

Plots can be zoomed with different modes (X, Y, area) and can be moved to adjust the visible area of the plot

Pressing the “Reset” button, plots will be displayed according to the initial (i.e. previous to zooming or move) condition

Data are also saved in .csv files, which can be opened with many softwares, including spreadsheets and text editors. The .csv data look like the ones shown in Fig. 13 and Fig 14 below



Cage number	1
File name	test 1
Experiment name	exp 1
Operator name	David
Animal name	12467
Animal sex	MALE
Animal weight [gr]	55
Animal notes	
Trial duration [H.MM]	0.01
Initial wait [H.MM.SS]	0.00.10
No shock time [MM:SS:ms]	0.05
Shock time [MM.SS.ms]	00.05.000
Intertrial interval [MM.SS]	0.3
N° of trials	2
Trial 1	
Date and time	15/11/2007 15.15.53
Initial licks	1
Shock licks	No shock licks
2	5
2	6
1	3
2	1
Trial 2	
Date and time	15/11/2007 15.18.55
Initial licks	1
Shock licks	No shock licks
5	3
3	2
5	3
Total shocks	20
Total licks	23
Description	test experiment

Fig 13: Experiment results of Cage 1 (Experiment Type, "TIME"); .csv file



Cage number	1
File name	test 3
Experiment name	Exp 2
Operator name	David
Animal name	56887
Animal sex	MALE
Animal weight [gr]	60
Animal notes	
Trial duration [H.MM]	0.01
Initial wait [H.MM.SS]	0.00.10
N° of licks to shock	5
Shock time [MM.SS.ms]	00.05.000
Intertrial interval [MM.SS]	0.25
N° of trials	2
Trial 1	
Date and time	14/11/2007 12.22.41
Initial licks	1
Licks	12
Shocks	6
Shock time 1	0.00.30.125
Shock time 2	0.00.30.469
Shock time 3	0.00.30.969
Shock time 4	0.00.31.750
Shock time 5	0.00.33.875
Shock time 6	0.00.41.841
Trial 2	
Date and time	01/01/1904 1.00.00
Initial licks	0
Licks	0
Shocks	0
Total shocks	6
Total licks	12
Description	

Fig 14: Experiment results of Cage 1 (Experiment Type, “n OF LICKS”); .csv file



## 3 MAINTENANCE

While any service of the instrument is to be carried out by Ugo Basile personnel or by qualified personnel, authorized by UGO BASILE organization, this section of the instruction manuals describes normal maintenance procedures which can be carried out at the customer's facilities.



**UNPLUG THE MAINS CORD BEFORE CARRYING OUT ANY MAINTENANCE JOB!**

### 3.1 Long Inactivity

The instrument does not require any particular maintenance after long inactivity, except cleaning.

### 3.2 Customer Support

For any further information you may desire concerning the use and/or maintenance of the Plantar Test, please do not hesitate to get in touch with our local distributor or with our **service department** at:-



**UGO BASILE s.r.l.**

Viale G. Borghi 43  
21025 COMERIO – Varese, ITALY



**Phone : +39 0332 744574**



**Fax : +39 0332 745488**



**e-mail : [service@ugobasile.com](mailto:service@ugobasile.com)**

**Before sending any instrument to our factory for repair**, we recommend you to get in touch with our service department to obtain a return authorization number (R.A.N.) and shipping/packing instructions.

We may not be held responsible for damages during transport due to poor packing. Whenever possible, please use the original packing.

## 4 ORDERING INFORMATION

45100 **Lickometer & Drinking-Conflict Test, complete system with following parts:**



45100-001 **5-channel Electronic Unit & Software**

45100-002 **Cage**

45100-004 **Shocker**

45100-302 **Instruction Manual**

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## *WIRING DIAGRAMS*


**WIRING DIAGRAMS ARE NOT INCLUDED IN THE MANUAL, BUT ARE AVAILABLE ON REQUEST.**

PLEASE ADDRESS TO OUR AFTER SALES SERVICE, SEE ALSO PARAGRAPH **3.2- Customer Support**