

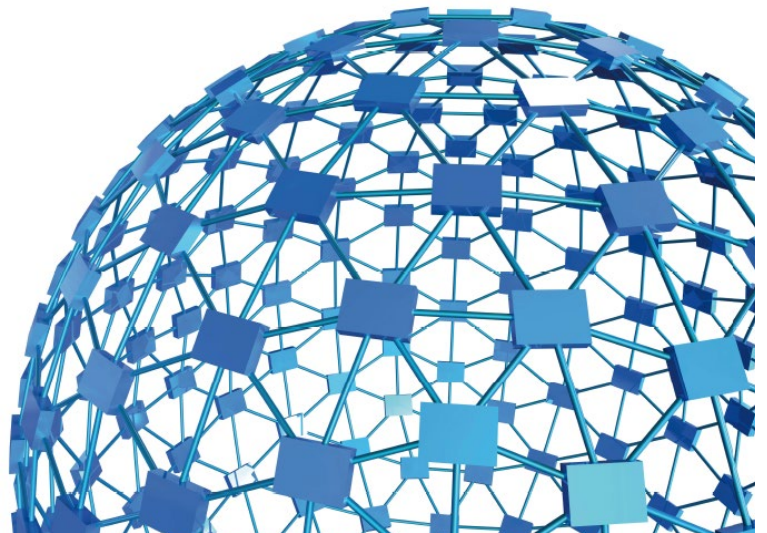


ugo basile®

TRANSFORMING IDEAS
INTO INSTRUMENTS

instruction manual

Set-Up for Learned Helplessness
Cat. No. 47500



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instruction manual

**Set-Up for Learned Helplessness
Cat. No. 47500**

Serial No.

SAFETY CONSIDERATIONS

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.



Learned Helplessness

Cat. No. 47500

General

When rodents are exposed to inescapable and unpredictable stress, such as forced swim or inescapable footshock, they often develop deficits in memory and learning tasks (e.g. **Active Avoidance**), and they often show also analgesic reactions (**S.I.A. Stress-Induced Analgesia**).

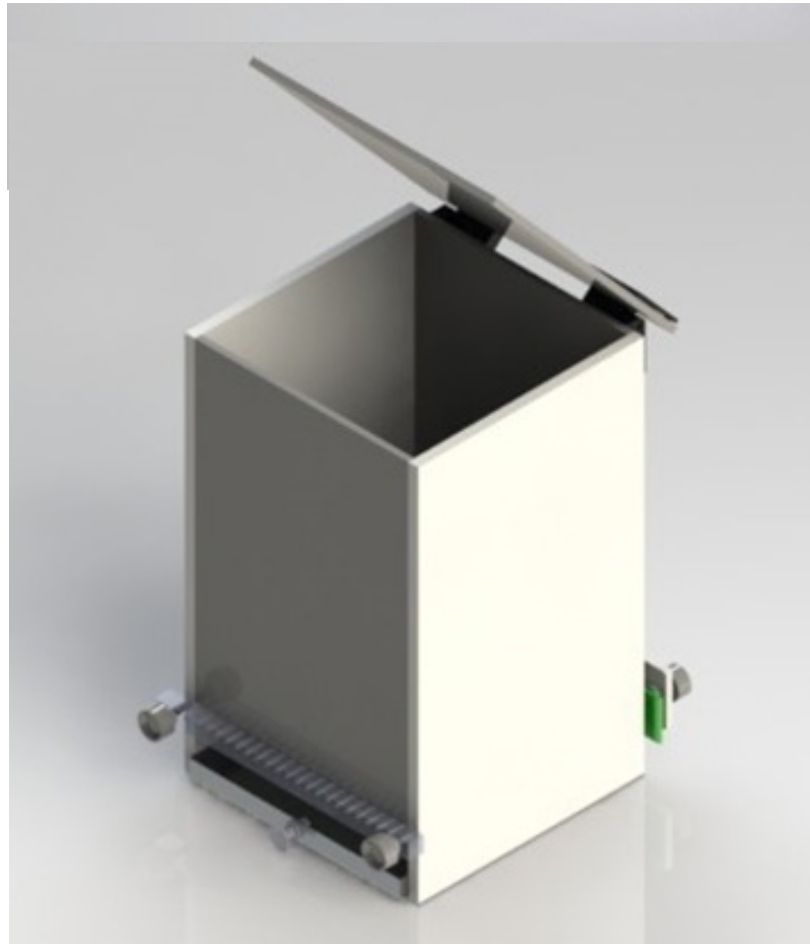
The **Ugo Basile Set-Up for Learned Helplessness** is based on a sophisticated generator of unpredictable random shocks delivered to the grid floor of a rodent box where no escape is possible.

Electric shocks can be randomized in terms of shock length and interval.

Complex trains can be programmed.

Up to 4 animals can be treated simultaneously in 4 independent boxes, controlled by the same electronic unit and software.

The set-up for Learned Helpless is part of the new UB Behavioral Cage program, exploiting the potentiality of a modern controller with touch-screen.



tip! this is part of the **beehive cage-manager system**; buy a single touch-screen controller, and manage all UB conditioning cages. *Ask for details!*

IDEAL TO STUDY

- Depression & Stress
- Learning & Memory Impairment
- Stress-Induced Analgesia (S.I.A.)

New Model



Main Features

- Randomizable shock patterns
- **Maximum flexibility:** configure your own Experimental Schedules on the touch-screen controller
- The electronic unit encompasses all controls for **up to 4 animal cages!**
- The new "launcher" application, makes it possible to manage other UB behavioral cages with the same **Touch-Screen Controller 40500-001**; just purchase the hardware and the application software for the additional test!
- **Remote Control feature** will make remote service and software upgrades extremely simple!



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TRANSFORMING IDEAS
INTO INSTRUMENTS

CHECK-LIST

Cat. No. 47500 Set-Up for Learned Helplessness

CLIENTE / CUSTOMER _____

Ordine No. / Order No. _____ Data / Date ____ / ____ / ____

UB code	CAT.No.	✓	Q.ty	DESCRIPTION	DESCRIZIONE		
	40500-001		1	CONTROLLER & SHOCKER	UNITÀ CONTROLLO CON SHOCKER		
	47500-010	✓		SOFTWARE ACTIVATION	SOFTWARE E ATTIVAZIONE		
→ IMPORTANT: SOFTWARE IS PRE-INSTALLED ON 40500-001							
	47502		1	RAT CAGE	GABBIA RATTO		
	47503		1	MOUSE CAGE	GABBIA TOPO		
E-AU 041 USB pen-drive	47500-302		1	INSTRUCTION MANUAL	MANUALE DI ISTRUZIONE		
	52010-323		1	USB CABLE	CAVO USB		
E-AU 074			1	POWER SUPPLY	ALIMENTATORE		
E-WP 008				MAINS CABLE	EUROPE	CAVO RETE	EUROPA
E-WP 008-1					U.S.A.	U.S.A.	
OPTIONAL (MULTIPLE CAGES)							
	40500-005		1	EXPANSION BOX	BOX ESPANSIONE		
	47502			ADDITIONAL RAT CAGE/S	GABBIA RATTO AGGIUNTIVA		
	47503			ADDITIONAL MOUSE CAGE/S	GABBIA TOPO AGGIUNTIVA		

DATE / /	Serial No.	IMBALLATO DA / PACKED BY
Universal Input 85-264 VAC, 50-60Hz		

IMPORTANT/IMPORTANTE:

Check the shipment for completeness immediately after receipt: should you find any discrepancy, please fill in the following part and transmit it to our fax no. **+39 0332 745488**

Al ricevimento della merce controllate che la spedizione sia completa: in caso di discrepanza, completate il formulario di seguito riportato ed **inviatelo** al nostro fax no. **0332 745488**

FROM: Name	Company/Institution
DATE	REF.

NOTE

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Set-Up for Learned Helplessness

Cat. 47500

1 GENERAL

Learned helplessness is behavior typical of an organism (human or animal) that has endured repeated painful or otherwise aversive stimuli which it was unable to escape or avoid: American psychologist **Martin Seligman** initiated research on learned helplessness in 1967 at the University of Pennsylvania as an extension of his interest in depression (see also paragraph 8).

In animal studies, when rodents are exposed to inescapable and unpredictable stress, such as forced swim or inescapable footshock, they often develop deficits in memory and learning tasks (e.g. Active Avoidance), and they often show also analgesic reactions (S.I.A. Stress-Induced Analgesia).

In addition, psychologists have looked at the correlation of depression and anxiety with learned helplessness over the years. It has been shown that the symptoms shown with learned helplessness have corresponding symptoms in depression. The symptoms most felt when depressed are the feelings of helplessness and uncontrollability that have been correlated with learned helplessness.

Helplessness behavior is also studied in social settings: being repeatedly exposed to uncomfortable or painful situations, the person may believe that there is no use in trying to evade such situations. Another example of learned helplessness in social settings involves loneliness and shyness. Those who are extremely shy, passive, anxious and depressed may learn helplessness to offer stable explanations for unpleasant social experiences.

1.1 Principle of Operation

The Ugo Basile **Set-Up for Learned Helplessness (L.H.)** is based on a sophisticated generator of unpredictable random shocks delivered to the grid floor of a rodent box where no escape is possible. Electric shocks can be randomized in terms of shock length, interval and complex trains can be programmed.

Up to 4 animals can be treated simultaneously in 4 independent boxes controlled by the same electronic unit and software.

2 INSTRUMENT DESCRIPTION

The set-up for Learned Helpless is part of the new UB Behavioral Cage program, exploiting the potentiality of a modern controller with touch-screen.

The instrument basically consists of:

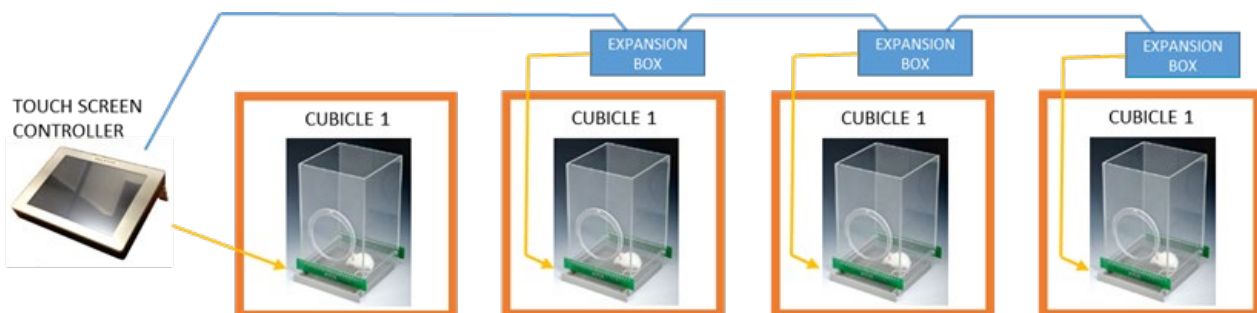
- **40500-001** 12" Touch-Screen Controller, encompassing a precision 8-pole shocker
- **40550-010** L.H. Software (installed on the Controller)
- **40552** Rat Cage
or
- **40553** Mouse Cage

Multiple configurations (up to 4 cages) can be controlled by the new electronic unit via the:

- **40500-005** Expansion Box, according to the following configuration:



The users owning Ugo Basile Fear Conditioning system can conduct the Learned Helplessness test within the FC cages and cubicles, by purchasing and installing the LH software on their touch-screen controller:



2.1 Touch Screen Controller

The **Programming/Recording Unit**, consolidates all controls and incorporates a constant-current high precision 8-pole shocker, in a single, compact electronic unit, of attractive design.

The **40500-001 Touch-Screen Controller** is a powerful and versatile tool, which will function as main unit in a number of tests:

- a. Fear Conditioning - available (see 46000-100)
- b. Passive Avoidance - available
- c. Passive Step Down - available
- d. Active Avoidance - available
- e. **Learned Helplessness** - available
- f. Startle/Response - available soon

For each test, a specific application software is available for installation. Each software is sold separately, so it's easy to customize each controller according to the experimental needs.

The application “**Launcher UB**” is installed on the 12” touch-screen (TS12).

When starting the system, the following screen will appear:

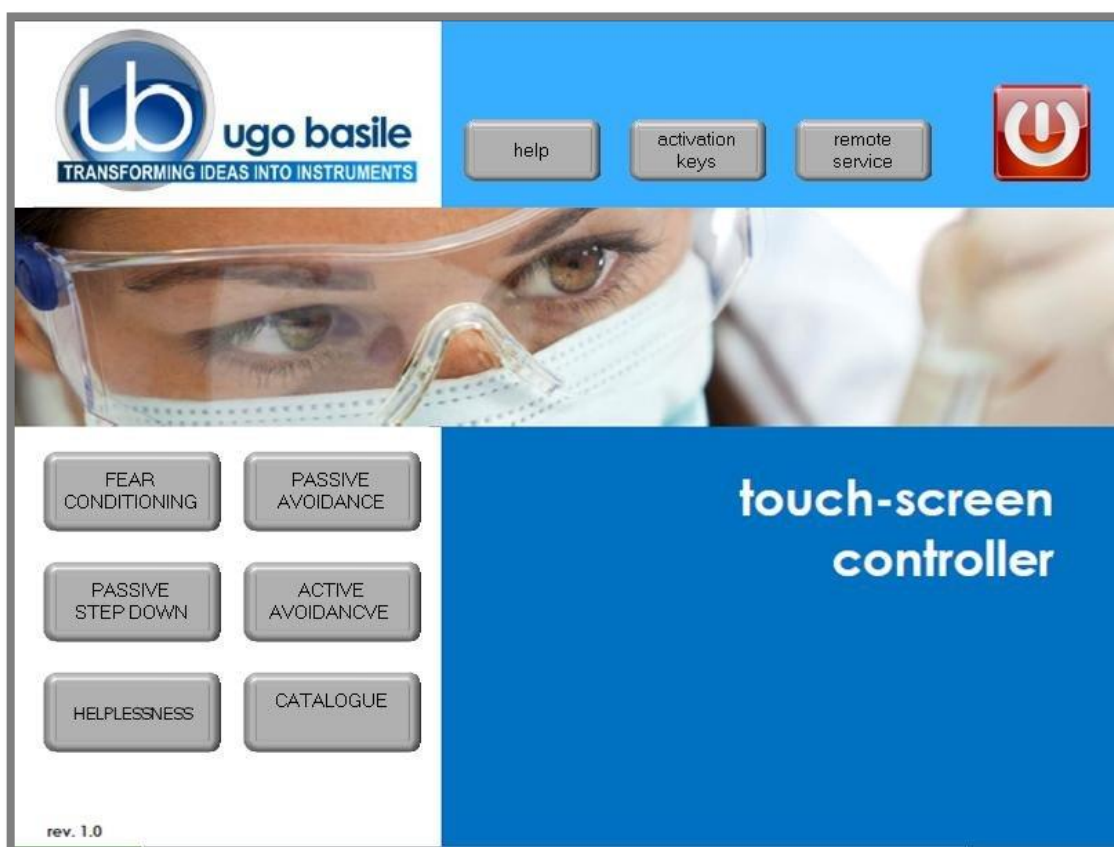


Figure 1 “Launcher”

The bottom left section of the screen shows the available applications, which appear as buttons, labelled with the name of the related test.

The button colour indicates the application status:



Light grey: software installed, but not enabled, it is necessary to enter the activation key



Dark Grey: software installed and active: press the button to run the application software.

In case an application software is not active it is necessary to enter the activation key.

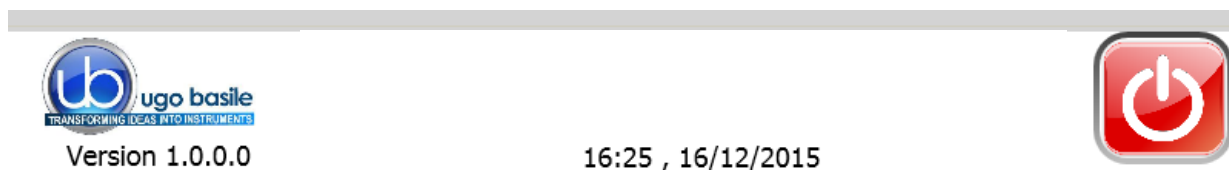


Also refer to the help section on the launcher menu on the Controller:



Having run the application software, the 40500-001 becomes the main Controller Unit to perform Helplessness Tests for Rats and Mice, with single or multiple cage setting.

The lower section of the T-S Controller shows, the **SW version**, the time and date, and the EXIT button, which brings back to the Launcher menu.



The T-S Controller is also a sophisticated generator of unpredictable random shocks delivered to the grid floor of the cage; electric shocks can be randomized in terms of shock length, interval and complex trains can be programmed.

The 12" touch-screen unit manages the Learned Helpless Test via the **47500-010 Software** (which comes pre-installed on the controller, when the touch-screen and the cage are purchased together).

The T-S Controller also manages data acquisition: data are stored inside the unit and can be downloaded via the USB key provided as standard, for further processing via Excel, Access, etc.

The test parameters can be set easily, with a quick touch of the screen: parameters can be adjusted with an easy and intuitive approach.

Protocols can be loaded, saved, imported or exported and deleted with just one touch.

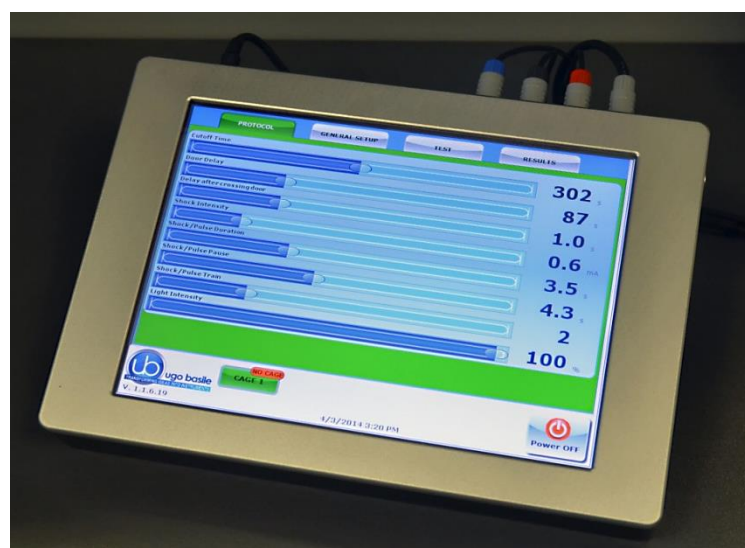


Figure 2 "Touch-Screen Controller"

2.2 Learned Helplessness Cage

Two sizes are available:

- **47502** designed for Rats dimensioned 22x22x20(h)cm
- **47503** designed for Mice dimensioned 17x17x20(h)cm

Both Cages include an electrified floor.

The electrical stimulus is applied to the floor bars of the cage and by an 8-pole “scrambling” circuit incorporated in the touch-screen controller.

All necessary cables and connectors are included to make it a ready-to-use system.

The Cage is provided with a **catch pan** of Nylon coated aluminum which slides in, on two side rails, below the floor grid.

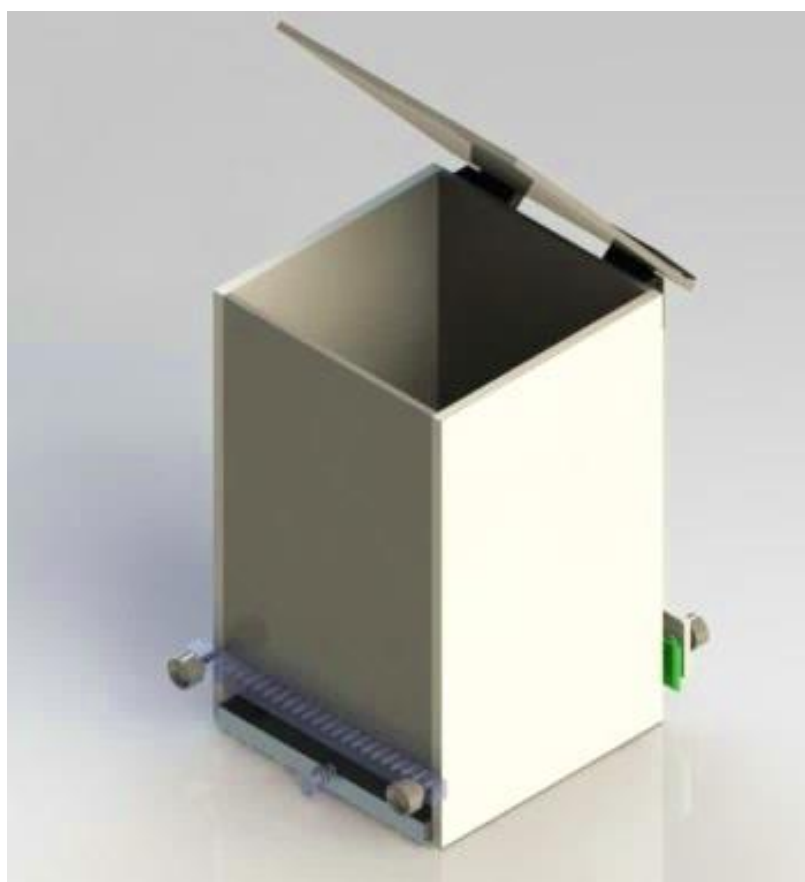
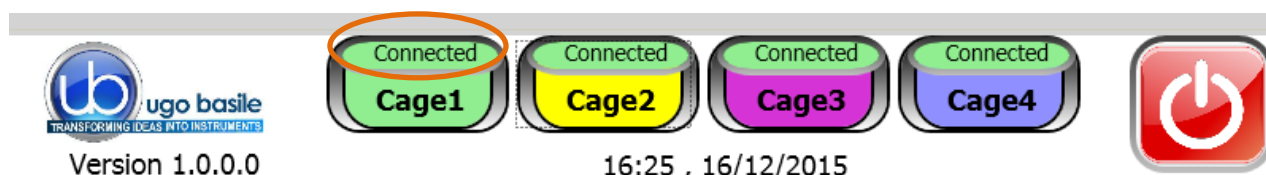


Figure 3 “Rat Cage 47502”

Up to 4 cages can be connected to the same Controller; if more than one cage is connected, an expansion box 40500-005 is required for each additional cage.

The connected cages are detected automatically, as indicated on the lower section of the controller display:



The above example considers a system of 4 cages: the four virtual keys, with the caption “Connected” confirming that the connection is correct and that communication between the devices is operational.

3 INSTALLATION

3.1 Unpacking & Preliminary Check

Check the contents of the shipment for completeness, packing list to hand, and visually inspect the instrument as soon you take it out of the packaging. Use the supplied **Check List**.

If the instrument is damaged, inform the carrier immediately, notifying our company. If after having tested it, the set-up fails to meet rated performances, please contact our after sales service, see paragraph 5.5-Customer Support.



Protect the environment!

Dispose of packaging properly, according to existing and applicable waste management rules and regulations.

3.2 Notes on the Instruction Manual

The Instruction Manual included in package (on the USB pen-drive) is necessary for the correct installation and operation of the instrument.

We recommend reading the manual with attention, as it is essential for the correct installation and operation of the instrument. Please save the manual, ready to be consulted by the qualified personnel who use the instrument. Print it, only if necessary.

Our Instruction Manuals are available as free download on our website.

For any additional information and/or assistance, you are welcome to contact our Service Department (see paragraph 5.5-Customer Support), specifying the serial number of the instrument.

3.3 Assembling the Instrument

Assemble the Learned Helplessness Set-Up on a stable bench or table surface. Once assembled, do not attempt to lift or move the combined unit; remove the connections first.

3.4 Recommended Operating Condition

Place the apparatus in a room which is acoustically isolated or at least remote from sudden or intense noises.

Temperature is an important factor since below 18-20°C the rodents sometimes react less promptly to stimuli. Optimum temperature is 22-25°C.

3.5 Setting-Up a Basic System

Setting-up a Standard System consists in the installation of:

- Animal Cage 47502 or 47503
- Touch-Screen Controller 40500-001 (with preinstalled software 47500-010)

3.5.1 Connections

Observe the back panel of the Touch-Screen Controller:



Figure 4 “Controller, Back Panel”

- **Connectors 1 (shock)** goes to cage 1 via the connectors provided on the junction box of cage 1. Possible mismatching is prevented by color coding.
- **BUS A-B** is the communication cable, which goes to the second cage (first expansion-box), and from there to third and fourth cage in a daisy-chain.
- **12V** for the power supply

3.5.2 Connection of Main Unit and Expansion Box/es

The BUS A-B connector on the T-S Controller back panel, connects to Expansion Box No. 1 (cage 2). Expansion box 2 and 3 are connected in daisy chain via the type of connector.

Cage 2 is connected to grey connector on the expansion box No. 1, Cage 3 to expansion box No. 2, Cage 4 to expansion box No. 3.

3.5.3 Learned Helplessness Software

The dedicated software is preinstalled on the controller, when the cage and the main unit are purchased together; the software version appears on the bottom left corner of the screen, below the Ugo Basile Logo (see paragraph 2.1). If the software is not active, enter the activation key, following the instructions on the HELP section of the launcher application, see also paragraph 2.1).

The users owning Ugo Basile Fear Conditioning system can run the Learned Helplessness test within the FC cages and cubicles, by purchasing and installing the LH software on their touch-screen controller.

When a new software version is available, it may be uploaded via the "**Update Application**" button (see paragraph 4.3.1.1).

3.6 Intended Use

The Learned Helplessness Set-Up is intended for investigation use on laboratory animals only.

3.7 General Safety Instructions

The following guidelines must be followed to ensure safe operation.

- ! **DO NOT** attempt to open or perform any service work
- ! **DO NOT** connect up human subjects



3.8 Additional Safety Consideration

- a. The cage floor is electrified; use maximum care and always use rubber gloves when handling the cage, to position/remove the animal, or the catch pan.
- b. Use original accessories and spare parts only, see also paragraph 6-ORDERING INFORMATION
- c. Do not operate the instrument in hazardous environments or outside prescribed environmental limitations (i.e. +18C°/+24C°, 60% relative humidity, non-condensing);
- d. Do not spray any liquid on the connectors;
- e. Keep inflammables far from the instruments.



UGO BASILE DOES NOT ACCEPT ANY RESPONSIBILITY FOR PROBLEMS OR HARM CAUSED TO THINGS OR PERSONS, ARISING FROM:

- incorrect electrical supply;
- incorrect installation procedure;
- incorrect or improper use or, in any case, not in accordance with the purpose for which the instrument has been designed and the warnings stated in the instruction manual supplied with the instrument;
- replacement of original components, accessories or parts with others not approved by the manufacturer;
- servicing carried out by unauthorized personnel

see also paragraph 5-MAINTENANCE.

4 OPERATION

4.1 Switching-On

The touch-screen controller is switched ON by the ON/OFF' button located on the back panel, see also Figure 4 “Controller, Back Panel”.



Start the L.H. application software by the related button on the launcher menu.



4.2 GENERAL SET-UP Window

By pressing the GENERAL SETUP label, you access the set-up page, where you can define test parameters and manage (create, save, load, delete, import, export) protocols:

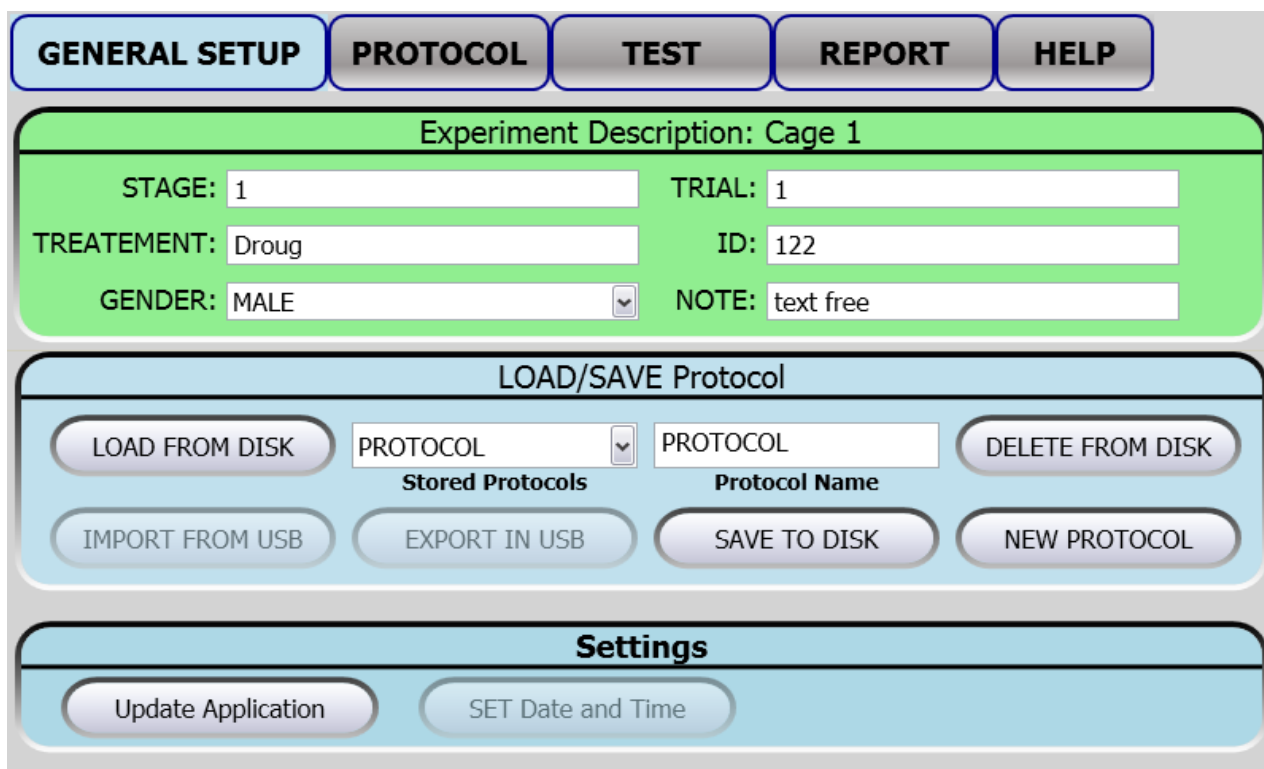


Figure 5 “GENERAL SET-UP Window”

This page is divided into three sub-sections:

- Experiment Description
- LOAD/SAVE Protocol
- Settings

The above options are described in detail in the next paragraphs.

4.2.1 Experiment Description

The title of the upper section “Experiment Description” indicates the cage number to which the setting refers.

The background of the same section also indicates the cage currently selected, according to the following visual clue:

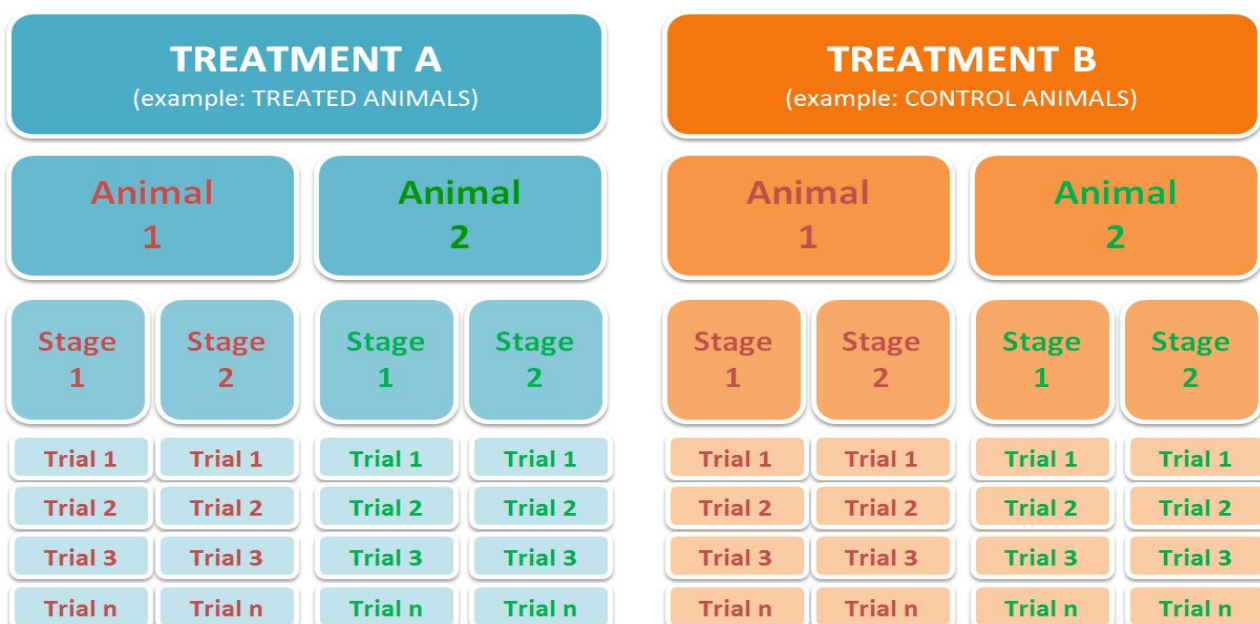
- **Green** > cage 1
- **Yellow** > cage 2
- **Purple** > cage 3
- **Blue** > cage 4

This section includes several text fields, all editable (except “gender”, which is a drop-down list), enabling the user to personalize the basic datum, by adding the following information:

- **STAGE:** indicating the number/name of the test
- **TRIAL:** indicating a trial number/name
- **TREATMENT:** indicating the type of treatment, which is helpful to divide the animals in groups, for example treated and control animals.
- **ID:** animal identification (number/name)
- **GENDER:** animal gender
- **NOTE** to enter general comments

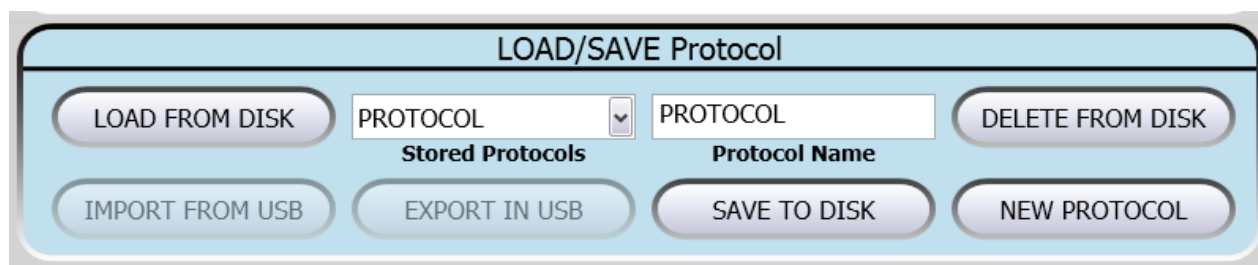
Every field can be edited by pressing the same, and entering the data on the virtual keyboard which appears on the screen.

The following diagram may help you to write your own experiment organization keeping in mind the above described fields:



Each information will appear in a different column within the results table (see paragraph 4.6-REPORT Window).

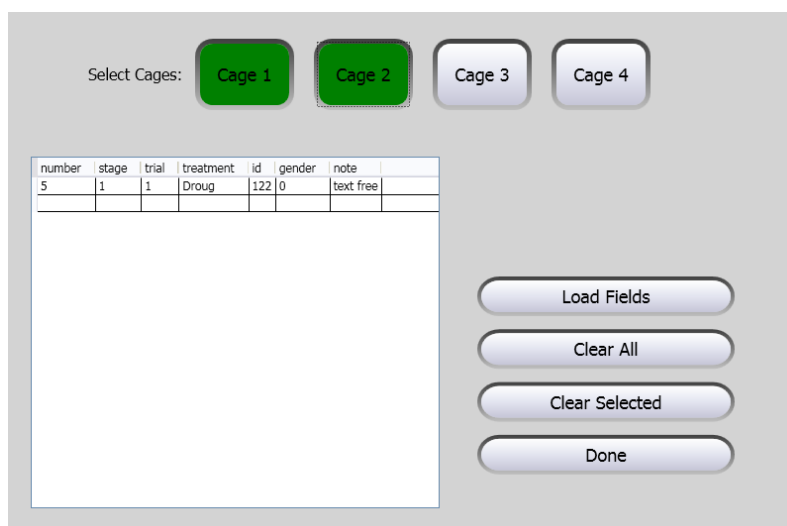
4.2.2 Load/Save Protocol



From this section the user may save his/her own protocols, and upload them on the internal disk or USB key, by acting on one of the virtual buttons available and entering the protocol name

4.2.2.1 Load From Disk

By the “Load From Disk” button it is possible to upload previously saved protocols from the T-S Controller internal disk :



4.2.2.2 Delete from Disk

The command “Delete” enables the user to cancel a protocol previously saved on the touch-screen disk.

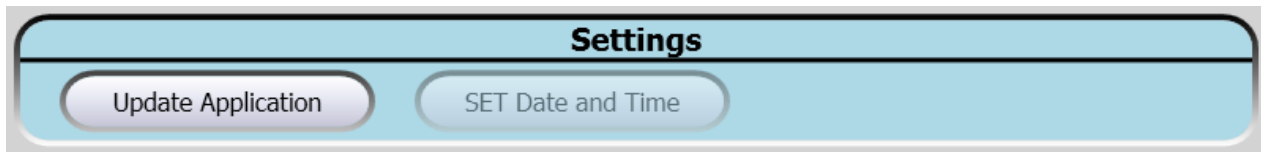
It is possible to scroll on the touch screen the list of all protocols previously saved in the touch-screen disk.

4.3 Save to Disk

This function saves the protocol in use on the touch screen disk.

If the protocol name already exists, a window will appear, see example, for each cage active on the system.

4.3.1 Settings

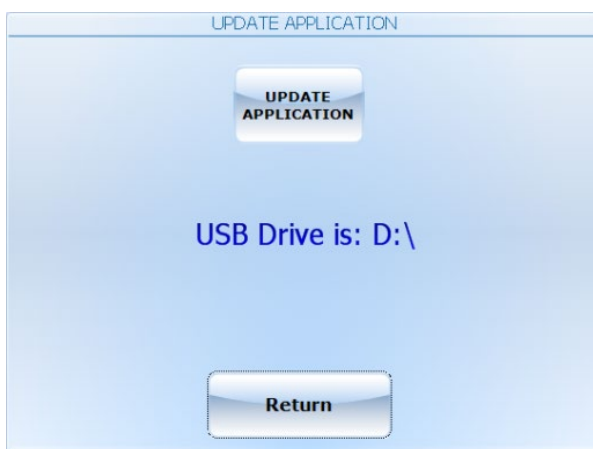


4.3.1.1 Update Application

When a new software version is available, you may upload it via the "**Update Application**" button.

Having received the file with the new version (e-mail or FTP), follow the steps below to install it on your controller unit:

- 1) Copy the new file "*Passive.exe*" on the root of a USB key
- 2) Insert the USB key and, if necessary, wait for the touch-screen controller to recognize the peripheral
- 3) Press "Update Application"
- 4) If the USB key is recognized, the UPDATE APPLICATION window will appear



- 5) Pressing "UPDATE APPLICATION" will start the file copy
- 6) The process will be confirmed by the caption "Updated Successfully"
- 7) The new SW will start automatically; you can verify the update by reading the new version at the bottom left corner, below the UGO BASILE logo.

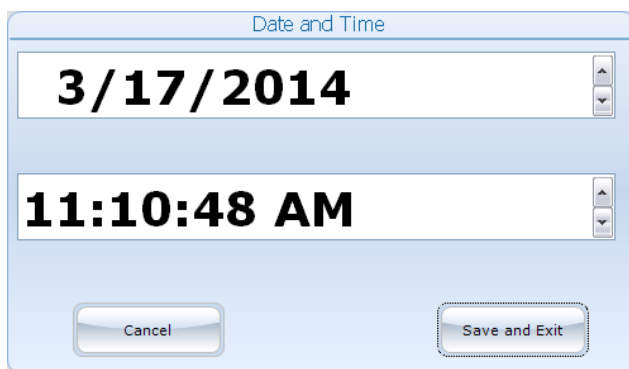


NOTES:

- It might be necessary to repeat action 5) more than once.
- If the USB key is not recognized, the following warning will appear: "USB DRIVE NOT PRESENT!!!"

4.3.1.2 Set Date and Time

By selecting “Set Date and Time”, the following window will appear:



Select the value to be modified, by pressing it, then change it via the arrows on the right.

Then select “Save and Exit” to save the new parameters (or “Cancel”, if you do not wish to save the change) to go back to the GENERAL SETUP menu.

4.4 PROTOCOL Window

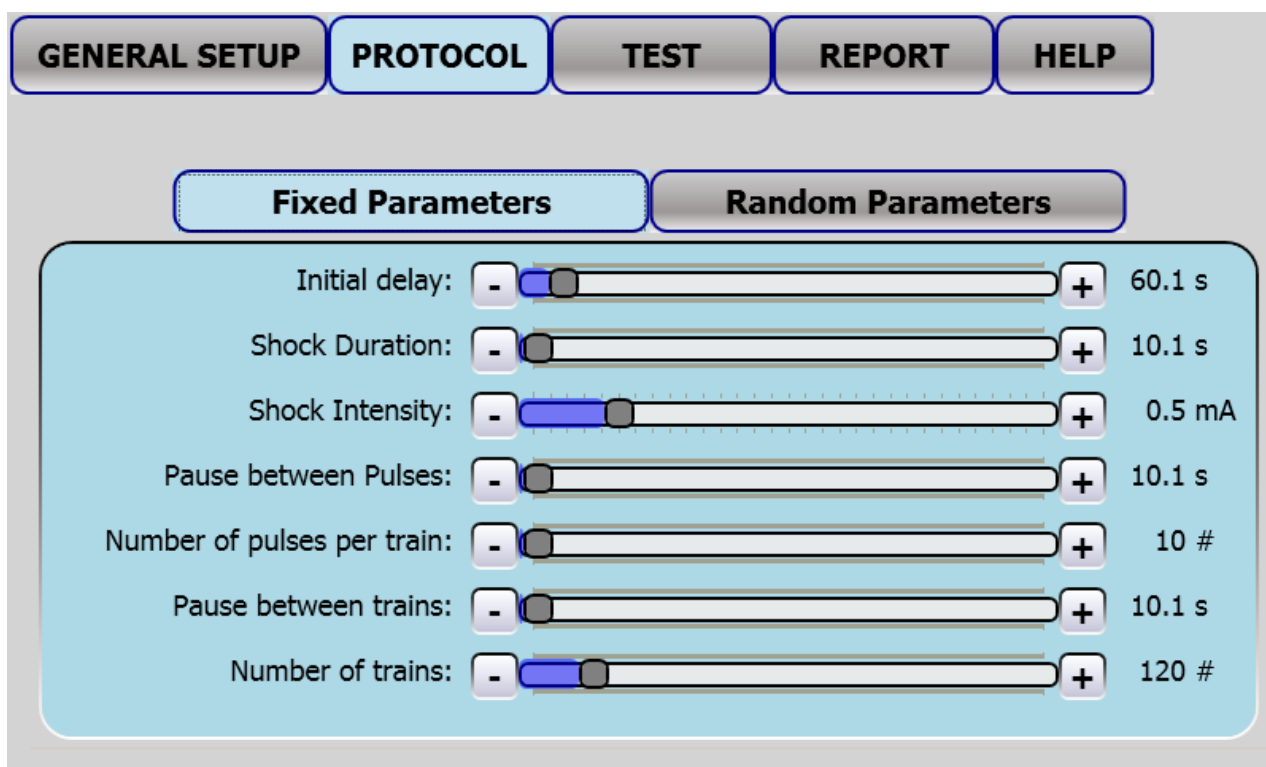


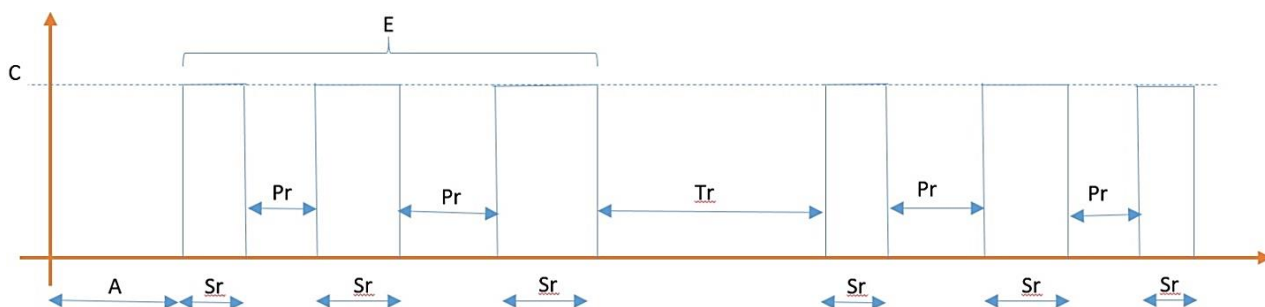
Figure 6 “PROTOCOL Window”

In the Learned Helplessness protocol, shocks need to be randomized in terms of length, interval between shocks, and interval between shock-trains.

In our system, the T-S Controller works as a sophisticated shock randomizer. Shock randomization is set according to the following parameters

Fixed Parameters

- A.** Initial delay: 0.1s to 999s, step 0.1s, default value 0.1s
- B.** Shock Duration: 0.5s to 999s, step 0.1s, default value 0.5s
- C.** Shock Intensity: 0 to 3mA, step 0.1mA, default value 0mA
- D.** Pause between Pulses: 0.1s to 999s, step 0.1s, default value 1s
- E.** Number of pulses per train: 1 to 999, step 1, default value 1
- F.** Pause between trains: 0.1s to 999s, step 0.1, default 1s
- G.** Number of trains: 1 to 999, step 1, default value 1



RANDOM-SHOCK PARAMETERS:

- H.** Random shock duration: 0.1s to B, step 0.1, default value 0s
 $0 < Hr < H$

Pulse duration can be: $Sr = B \pm Hr$

- I.** Random pause between pulses: 0.1s to D, step 0.1s, default value 0s
 $0 < Ir < I$

The interval between two pulses can be: $Pr = D \pm Ir$

- J.** Random pause between trains: 0.1s to F, step 0.1s, default value 0s
 $0 < Lr < L$

The interval between two pulse-trains can be: $Tr = F \pm Lr$



The protocol programming will be common to all the cages connected to the controller.

4.5 TEST Window



Figure 7 “TEST Window”

The test is started and stopped either by:

- the **virtual START** and **STOP** buttons corresponding to Cage#1, #2, #3 or #4. These buttons activates the shock only on the corresponding cage

or by:

- the **“ALL CAGES” virtual START** and **STOP** buttons: these buttons activate and stops the shock on all cages at the same time.



- when this slide switch is on **ON** position: the same random trial will be applied to all cages
- when on **OFF** position: different random values will be applied to each cages, hence trials will be different for each cage

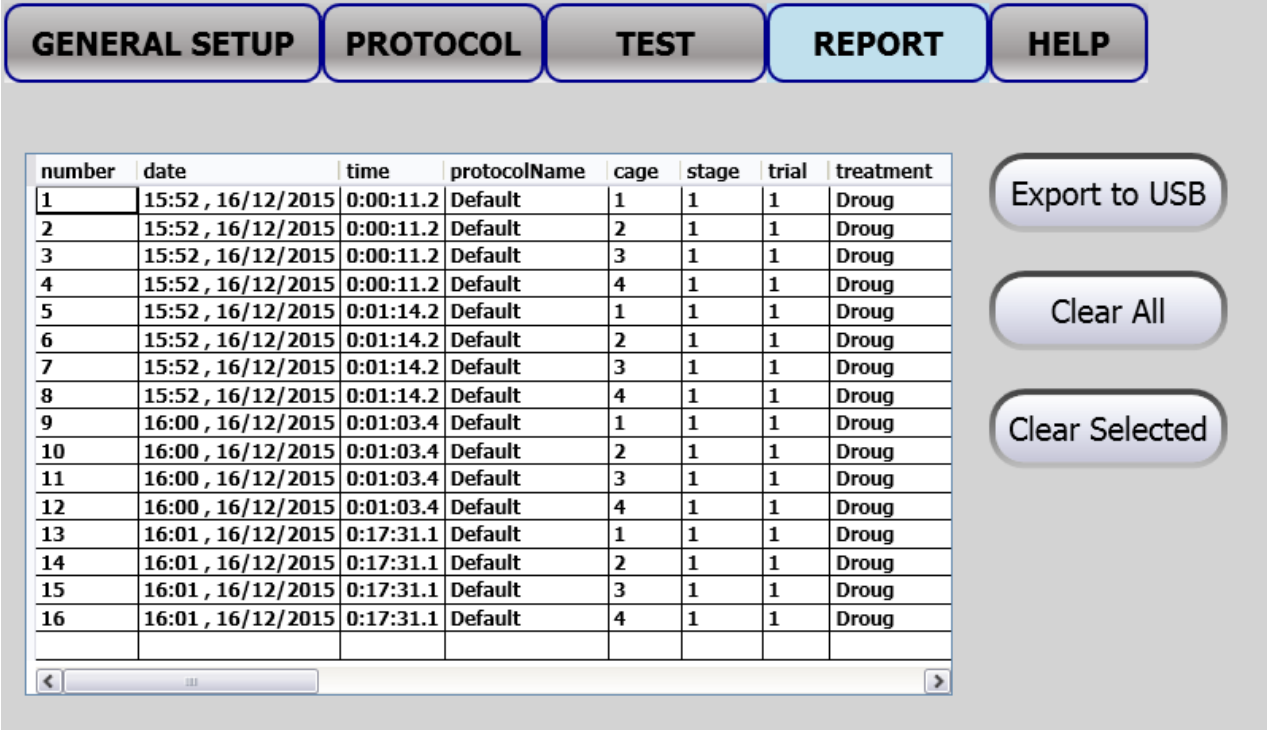


During the experiment, a yellow LED indicates for each cage that the shock is ON



This counter indicates the time elapsed from the beginning of the trial. At the end of the trial, this datum is displayed until a new trial is started, and the counter starts again from 0.

4.6 REPORT Window



The screenshot shows the 'REPORT' window with a table of test results and three buttons on the right: 'Export to USB', 'Clear All', and 'Clear Selected'.

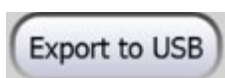
number	date	time	protocolName	cage	stage	trial	treatment
1	15:52 , 16/12/2015	0:00:11.2	Default	1	1	1	Droug
2	15:52 , 16/12/2015	0:00:11.2	Default	2	1	1	Droug
3	15:52 , 16/12/2015	0:00:11.2	Default	3	1	1	Droug
4	15:52 , 16/12/2015	0:00:11.2	Default	4	1	1	Droug
5	15:52 , 16/12/2015	0:01:14.2	Default	1	1	1	Droug
6	15:52 , 16/12/2015	0:01:14.2	Default	2	1	1	Droug
7	15:52 , 16/12/2015	0:01:14.2	Default	3	1	1	Droug
8	15:52 , 16/12/2015	0:01:14.2	Default	4	1	1	Droug
9	16:00 , 16/12/2015	0:01:03.4	Default	1	1	1	Droug
10	16:00 , 16/12/2015	0:01:03.4	Default	2	1	1	Droug
11	16:00 , 16/12/2015	0:01:03.4	Default	3	1	1	Droug
12	16:00 , 16/12/2015	0:01:03.4	Default	4	1	1	Droug
13	16:01 , 16/12/2015	0:17:31.1	Default	1	1	1	Droug
14	16:01 , 16/12/2015	0:17:31.1	Default	2	1	1	Droug
15	16:01 , 16/12/2015	0:17:31.1	Default	3	1	1	Droug
16	16:01 , 16/12/2015	0:17:31.1	Default	4	1	1	Droug

Figure 8 “RESULT Window”

The Helplessness protocol actually does not have a result. At the end of the test, the data related to each cages connected to the set-up are organized in an Excel datasheet, with the following information:

- date/time
- timer duration
- protocol name
- cage
- stage
- trial
- treatment
- id
- gender
- note
- initial delay
- shock duration
- shock intensity
- pause between pulses
- number of pulses per train
- pause between trains
- number of trains
- random shock duration
- random pause between pulses
- random pause between trains

4.6.1 Export to USB Drive



To export the data in the “Test results” table, insert a USB key in the dedicated slot on the touch-scren controller, then select “EXPORT TO USB DRIVE”: the data will be saved in .CVS format, ready to be up-loaded on a PC for further processing/analysis.

4.6.2 Delete Options



To delete all records saved in the “Test results” table, select “Clear All”

Confirm or cancel the selection by answering **YES** or **NO** to the question “**Clear All Data?**”



To delete a single record, select it by pressing anywhere inside the related row, then press “Clear Selected”.

Confirm or cancel the selection by answering **YES** or **NO** to the question “**Delete current record?**”

4.7 HELP Window

The HELP page contains the manual.

4.8 Switching Off

The touch-screen controller can be switched off from any menu, by pressing the Power Off virtual button, or by the 'ON/OFF' button located on the back panel, see Figure 6 “Controller, Back Panel”.



5 MAINTENANCE

Ugo Basile Learned Helplessness Set-Up is covered by a 24-month warranty. Service, if necessary, has to be done by authorized UB personnel only; servicing by anyone other than an authorized service facility will void the warranty.

If a problem occurs, contact your representative, see paragraph 5.5-Customer Support.



UNPLUG THE MAINS CORD BEFORE CARRYING OUT ANY MAINTENANCE JOB!

5.1 Cleaning and Sterilization

The touch-screen controller may be wiped down with a dry, lint-free cloth (one is provided with the standard package). Clean only the Controller case using a damp, soft cloth; do not use chemicals or abrasive elements.

Under no circumstances allow moisture to penetrate the instrument. Unplug power cord from AC outlet before cleaning.

The bars of the Cage floor should be cleaned daily, to remove traces of the animal faeces which impair contact, especially when dry. Cotton wool, dipped in water/alcohol mixture is recommended for cleaning the bars.

The Cage is provided with a catch pan which slides in, on two side rails, below the floor grid. The Nylon coating makes it easy to clean it.

To clean the cage avoid to use organic solutions which are liable to impair the cage surface.

5.2 Disposal of Old Electrical & Electronic equipment

Applicable in the European Union and other European countries with separate collection systems



This product shall not be treated as household waste. To reduce the environmental impact of WEEE (Waste Electrical and Electronic Equipment) and minimize the volume of WEEE entering landfills, please reuse and recycle.

Send to a recycling center equipped to handle electronics.

5.3 Abnormal conditions

Operate the instrument only as intended by the manufacturer. If you suspect the instrument protection has been impaired, disconnect the power cord and secure the instrument against any unintended operation.

The protection is likely to be impaired if, for example, the instrument shows visible damage or has been subjected to severe transport stress. Proper use of instrument depend on careful reading of all instruction and labels.

5.4 Long Inactivity

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

5.5 Customer Support

For any further information you may desire concerning the use and/or maintenance of the L.H. Set-Up, please do not hesitate to contact our **service department** (or our local distributor) either directly or via our support page <http://www.ugobasile.com/support.html> :



UGO BASILE s.r.l.

Via G. Di Vittorio 2

21036 GEMONIO – Varese, ITALY

No. 4	47503	L.H. Mouse Cage
No. 3	40500-005	Expansion Box (one is required for each additional cage)

7 INSTRUMENT SPECIFICATIONS

Touch Screen Controller

LCD	12" with resistive touch screen
CPU Module Port	2 USB Port 2.0; 1 Ethernet port 10/100Mb; 1 DVI port for external monitor
Peripheral Port	4 output for Sound, Shock and light; 1 Power supply 12V-2A
Expansion Bus Connection	2 RJ11 connectors 1 USB port type B (not used)

Settings

Shock	Constant current
Shock Intensity	from 0.1 to 2.9mA, in 0.1mA steps
Shock Duration	Duration: from 0 to 99 seconds
Operating Temperature	10° to 40°C
Sound Level	Negligible
Pollution Degree	≤ 2

Physical

Net weight	Rat Cage	5.3Kg
	Mouse Cage	3.4Kg
	Controller	2.7Kg
Shipping Weight	Rat Set-Up	13Kg
	Mouse Set-Up	12Kg
Dimensions	Rat Cage	22x22x20(h)cm
	Mouse Cage	17x17x20(h)cm
Packing Dimensions	Controller and One Cage	80x60x44cm

Warranty

47500 is covered by a 24-month warranty

8 BIBLIOGRAPHY

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- Kademian et alia: “**Biphasic effects of adrenal steroid on learned helplessness behavior by inescapable shock**” Neuropsychopharmacology 30: 58-66, **2005**
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Notes

A series of horizontal dashed lines for writing notes.





ugo basile®

TRANSFORMING IDEAS
INTO INSTRUMENTS

CE CONFORMITY STATEMENT

Manufacturer **UGO BASILE srl**
Address Via G. di Vittorio, 2 – 21036 Gemonio, VA, ITALY
Phone n. +39 0332 744574
Fax n. +39 0332 745488

We hereby declare that

Instrument. **SET-UP FOR LEARNED HELPLESSNESS**
Catalog number **47502 – 47503 – 40500-001**

*is manufactured in compliance with the following European Union Directives
and relevant harmonized standards*

- *2014/35/UE relating to electrical equipment designed for use within certain voltage limits*
- *2014/30/UE relating to electromagnetic compatibility*
- *2011/65/UE and 2015/863/UE on the restriction of the use of certain hazardous substances in electrical and electronic equipment*

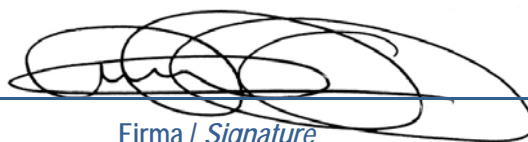
Account Manager

Mauro Uboldi

Nome / Name

October 2018

Date



Firma / Signature