CATALOGUE 2017

your science, our devices

BEHAVIOUR LEANING AND MEMORY


PAIN AND INFIAMMATION


MOTORY COORDINATION, GRIP, STRENGTH, ACTIVITY


VENTILATORS AND GAS ANESTHESIA


BEHAVIOUR, CONDITIONING, REWARD


BEHAVIOUR, MAZES, TRACKING


TISSUE BATHS, TRANSDUCERS, RECORDERS


MISCELLANEOUS, ECT, LMD


BLOOD PRESSURE, VITAL FUNCTIONS


METABOLISM, FEEDING BEHAVIOUR


MUROMACHI MICROWAVE FIXATION

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what's new

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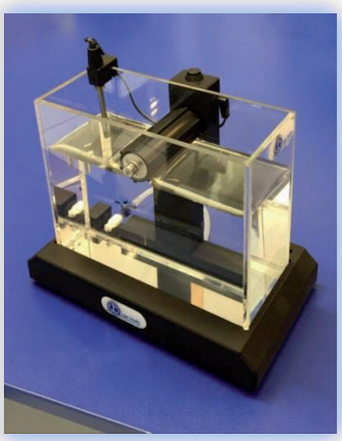
STARTLE RESPONSE/PPI

a new device in the BEEHIVE family

beehive
cage-manager system.
A single touch-screen controller, to manage all UB conditioning cages.
Ask for details!

NEW GENERATION INSTRUMENTS: NEW LOOK, NEW SOFTWARE, NEW DEVICES... SAME RELIABILITY

NEW Forced Swim Test



your trusted partner...

roadmapping the future of behavioral research!

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Ugo Basile: more than 10,000 citations

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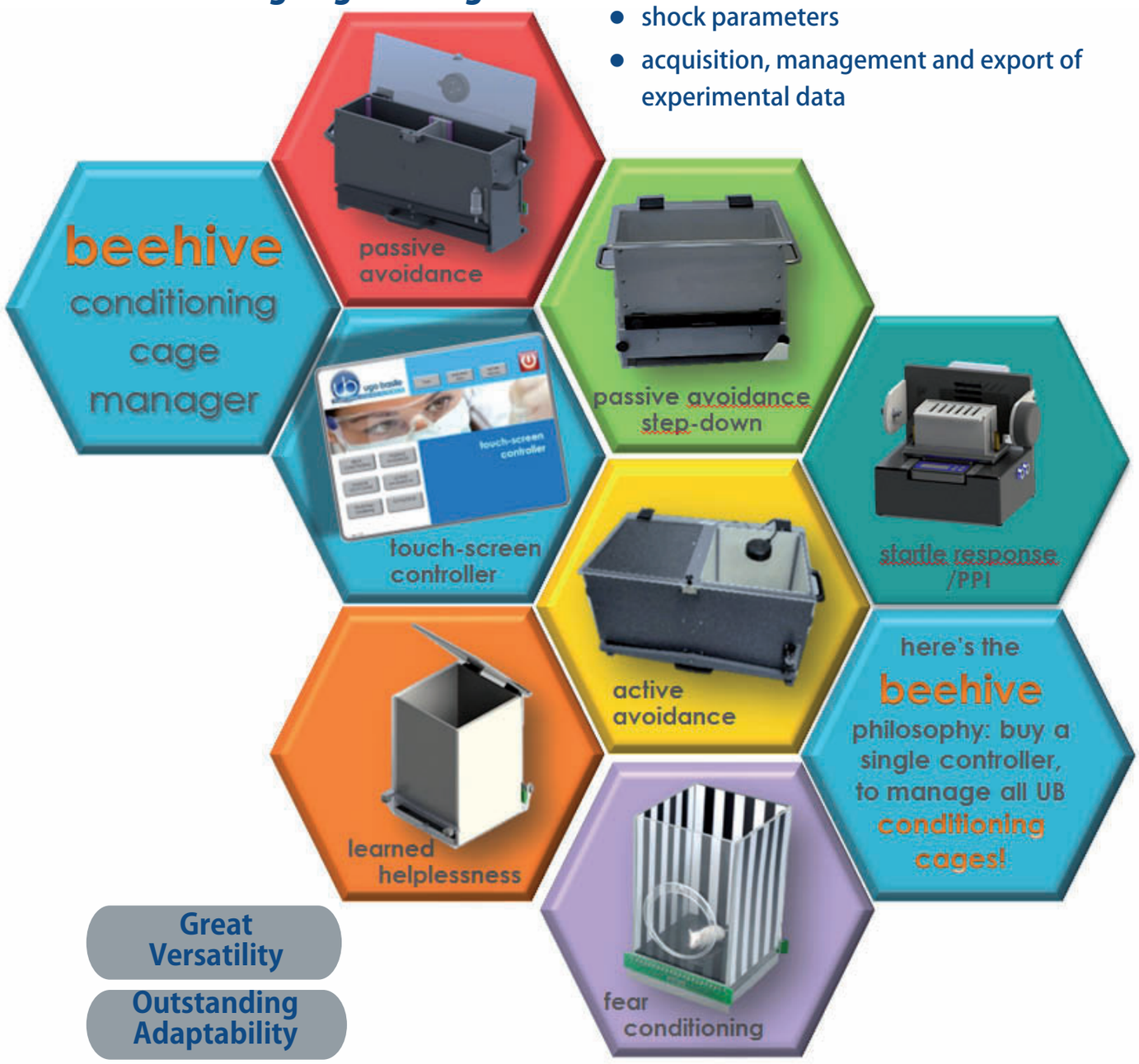
Beehive
Conditioning Cage Manager

A SINGLE UNIT TO CONTROL:

- experimental settings (light, sound, etc.)
- shock parameters
- acquisition, management and export of experimental data



Great Versatility

Outstanding Adaptability

Main Features

- The electronic with touch-screen encompasses all controls for **up to 4 animal cages**
- The same controller will function as main unit in a number of **conditioning tests**; just purchase the hardware and the application software for the additional test!
- The new "**launcher**" application, makes it easy to manage other UB behavioral cages

Ugo Basile: more than 10,000 citations

System Description

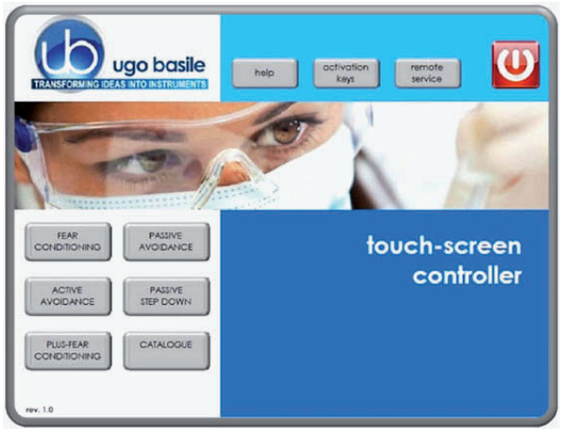
The new **Beehive system**, is an advanced, versatile, modular system for conditioning tests.

Different set-ups, depending on animal (rat or mouse), type of behavioral test and number of cages, can be obtained by combining the following elements:

- **Touch-Screen Controller with Shocker**
- **Behavioral Cage/s** (up to 4 with one controller)
- **Expansion Box**, for multiple cage set-up
- **Isolation Cubicle/s Box**,(if required)

The "*queen bee*" is the **40500-001 Touch-Screen Controller,** a powerful tool incorporating a 12" touch-screen, which will function as main unit in a number of tests, via the dedicated application software:

- **Fear Conditioning**
- **Passive Avoidance (step-through)**
- **Passive Avoidance (step Down)**
- **Active Avoidance**
- **Learned Helplessness**
- Startle Response/PPI for Mice



The **40500-001**, encompasses all controls, incorporates a constant-current high precision 8-pole shocker, and 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.

Up to 4 cages of the same type can be connected to the same Controller, via expansion box/es **40500-005**.

For each test, a specific application software is available for installation; each software is sold separately, so it is easy to customize each controller.

Launcher Menu

By the application "Launcher UB" installed on the 12" touch-screen, the user chooses the experimental routine among the ones installed.

In addition, the Launcher features the following options:

- **Help:** pressing the "help" button will display the Launcher user manual online
- **Activation Keys:** software activation keys are entered via a virtual keyboard. Additional software activations may be purchased separately
- **Remote Service:** remote service is manager by a specific software installed on the Touch-Screen.

Ordering Information

40500-001 **Touch-Screen Controller** & Shocker

Available Software Activation Keys

40530-010 Activation SW for **Active Avoidance**
40550-010 Activation SW for **Passive Avoidance**
40570-010 Activation SW for **Passive Avoidance** (step-down)
46000-110 Activation SW for **Fear Conditioning NG**
47500-010 Activation SW for **Helplessness**
48000-010 Activation SW for **Startle/PPI**

See also the following datasheets

40530 **Passive Avoidance** (step-through)
40550 **Passive Avoidance** (step-through)
40570 **Passive Avoidance** (step-down)
46000 **Fear Conditioning**
47500 **Learned Helplessness**
48000 **Startle/PPI for Mice**

System Specifications

Inputs	4
Input voltage	TTL input 0-5Vdc opto-isolated
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 outputs for Sound, Shock and Light
Power supply	12V-2A
Expansion Bus Connection	2 RJ11 connectors
USB port	type B (only for software connection)
Weight	2.7Kg
Shipping Weight	4Kg
Dimensions	25(d) x 33(w) x 5.5(h) cm
Packing	53x41x13cm

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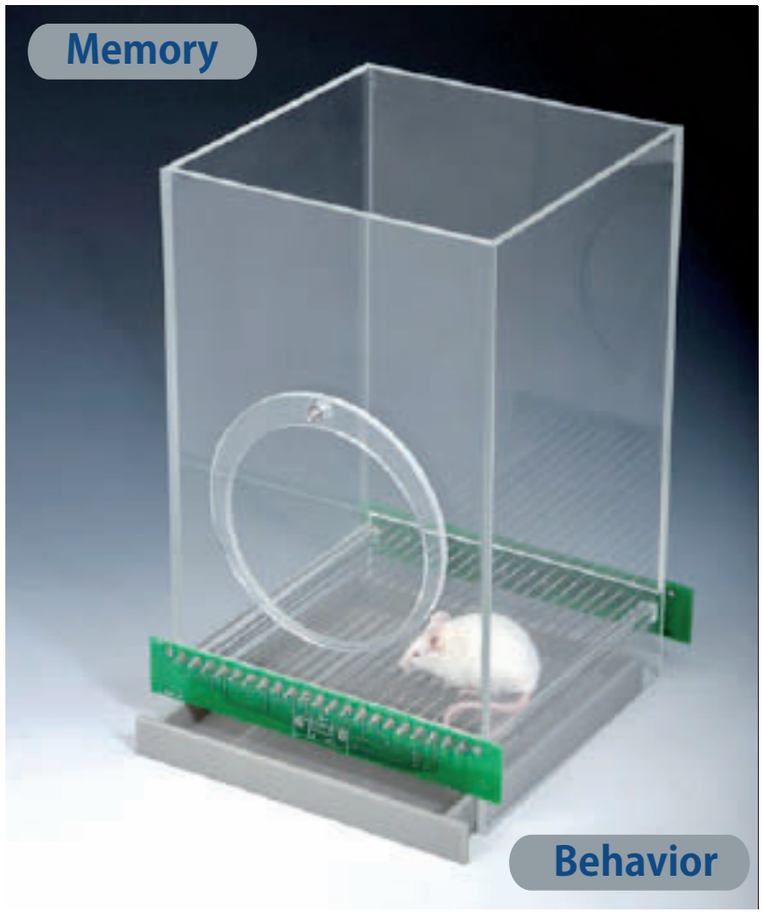
New Fear Conditioning System

Series 46100



General

The Ugo Basile Fear Conditioning Systems 46000 includes all the components to run experiments on mice or rats, according to the paradigms:

- **Contextual Fear Conditioning**
- **Cued Fear Conditioning**

The detection of **Freezing** is automated and based on video analysis. The **shock**, **light** and **sound** parameters are controlled by software (USB) or manually, via the new Electronic Unit, based on touch-screen technology.

System Configuration

A typical **Basic System** consists of:

- Controller with touch-screen
- Animal box with electrified floor and Context Kit (3 floors, 9 walls)
- Isolation Cubicle, with dual (visible/I.R.) light, speaker and fan

The **complete system** also include:

- Freezing-detection Software
- USB Videocamera

Preinstalled PC can be supplied as optional

"I have been using your fear conditioning setup pretty heavily in the last months and I am really happy..."

Dr. Alexandra Klein, Max Planck Insitute

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!

Main Features

- All controls managed by a single unit
- AUTOMATIC detection of FREEZING also in Total Darkness
- Specific versions for rats or mice
- Multiple Cage Set-up (up to 16 cages, in
- 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!
- **New software NG** on board

Ugo Basile: more than 10,000 citations

System Components

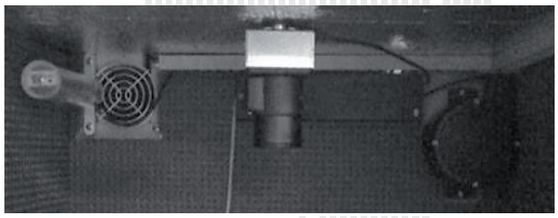
Software and IR-CCD camera

The Ugo Basile Fear Conditioning system benefits of a specific version of the Any-maze software, Cat. No. **60000-FC**; the software controls the Ugo Basile hardware, automatically detects the *freezing* behavior and analyzes the results across time.

Measured parameters include:

- Total *Freezing* time
- No. and duration of freezing episodes across time

The USB videocamera **47400-030**, is sensitive to IR light and allows for *freezing* detection even in total darkness.



Wide angle lenses and IR filters are included.

Controller

The ***new*** FC Controller **40500-001, with the aid of the new application software 46000-110** consolidates all controls in a single compact electronic unit.

On its 12" touch-screen, the researcher sets the following parameters via the user-friendly interface

- **Sound**, in the range 100Hz-18KHz; 55-100dB or white noise. The speaker is included in the Cubicle.
- **Shock**: constant current (from 0.1 to 2.9 mA in 0.1 mA steps). The shock can be controlled via external operation (via 5V TTL signals)
- **Light**

Connections are arranged on the controller back panel:

Animal Box with Electrified Grid Floor

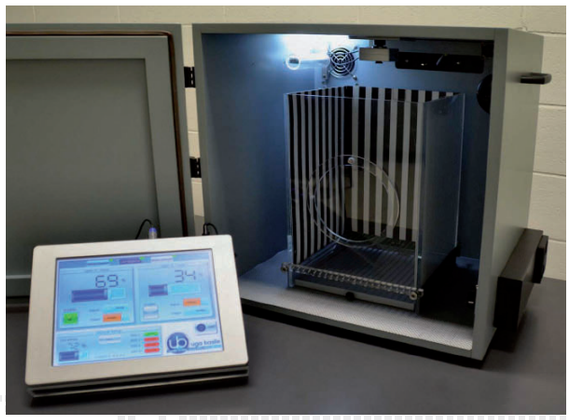
- **46003** Mouse Box:
  inside dimensions: 17x17x25(h) cm
- **46002** Rat Box
  inside dimensions : 26x26x30(h) cm

Context Kit

A complete set of removable contexts is provided to alter the colour of the box walls and floor. Each animal box includes a kit with: 3 striped walls, 3 chessboard, 3 grey walls and 3 plastic floors (white, black, grey).

Isolation Cubicle

The new-design Isolation Cubicle **46000-590** includes a **dual** (**visible** and **I.R.**) LED **light,** a **loudspeaker and** a noiseless **fan** all conveniently positioned inside the sound-attenuating cubicle. Multiple-cage set-ups include an expansion-cubicle with its slave electronics on board



Preinstalled PC (optional)

Our Fear Conditioning systems can be used with Windows laptop or desktop PCs. We also offer ready-to-use systems, including a PC, with preinstalled software & hardware, fully tested.

Ordering Information

COMPLETE SYSTEMS (with software and USB camera)

MOUSE	RAT	
46153	**46152**	Complete Single-Cage FC System
46253	**46252**	Complete Two-Cage FC System
46453	**46452**	Complete Four-Cage FC System

BASIC SYSTEMS (without software/camera)

MOUSE	RAT	
46103	**46102**	Basic Single-Cage FC System
46203	**46202**	Basic Two-Cage FC System
46403	**46402**	Basic Four-Cage FC System

Additional Animal Kits, including Cage, expansion cubicle & electronics (no camera) are available:

46102-002	Rat
46103-003	Mouse

All components can be ordered separately

Bibliography

- D.W. Anderson et alia: "**Effects of low level lead exposure on associative learning and memory in the rat: Influences of sex and developmental timing of exposure**" Toxicology Letters 246: 57-64, ***2016***
- D. Sierra-Mercado et alia: "**Controlled cortical impact before or after fear conditioning does not affect fear extinction in mice**" Brain Research 1606: 133-141, ***2015***
- S. Yusufishaq et alia: "**Post-Weaning Social Isolation impairs observational fear conditioning**" Behav. Brain Res. 242 (1): 142-149, ***2013***
- A. Sirri et alia: "**Temporal gene expression profile of the hippocampus following trace fear conditioning**". *Brain Research 1308*, 14-23, 2010

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Set-Up for STARTLE/PPI

Cat. No. 48000

General

In animals, including humans, the startle response is a largely **unconscious defensive response to sudden or threatening stimuli**, such as sudden noise or sharp movement, and is associated with negative effect. Usually the onset of the startle response is a **startle reflex reaction**, a brainstem reflectory reaction (reflex) that serves to protect vulnerable parts, such as the back of the neck (whole-body startle) and the eyes (eyeblink) and facilitates escape from sudden stimuli.

Prepulse Inhibition (**PPI**) is a neurological phenomenon in which a weaker prestimulus (prepulse) inhibits the reaction of an organism to a subsequent strong startling stimulus (pulse). The stimuli are usually acoustic, but tactile stimuli (e.g. via air puffs on the skin) and light stimuli are also used.

The reduction of the amplitude of startle reflects the ability of the nervous system to temporarily adapt to a strong sensory stimulus when a preceding weaker signal is given to warn the organism.

Deficits of prepulse inhibition, manifesting in the inability to filter out the unnecessary information, have been linked to abnormalities of sensorimotor gating, noted in patients suffering from illnesses like **Schizophrenia** and **Alzheimer's Disease**, or under the influence of drugs, surgical manipulations, or mutations. Animal models are widely used to test hypotheses linking genetic components of various diseases with sensorimotor gating.

FOR MICE *

Multiple-Cage Set-up

AUTOMATIC DETECTION OF STARTLE REFLEX

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!

Main Features

- The electronic unit encompasses all controls for **up to 4 animal cages!**
- **Maximum flexibility and full event randomization**
- **Specific version for Mice, Rat version available soon (*)**

NEW software NG on board

- 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!

Ugo Basile: more than 10,000 citations

Instrument Description

Depending on the number of cages, different set-ups can be obtained by combining the following elements:

- **Controller with Touch-Screen**
- **Dedicated Software on board**
- **Startle Link-Box**
- **Isolation Cubicle**
- **Stimulating/Recording (S/R) Platform**
- **Animal box (NO HOLDER)**

Controller with Touch-Screen

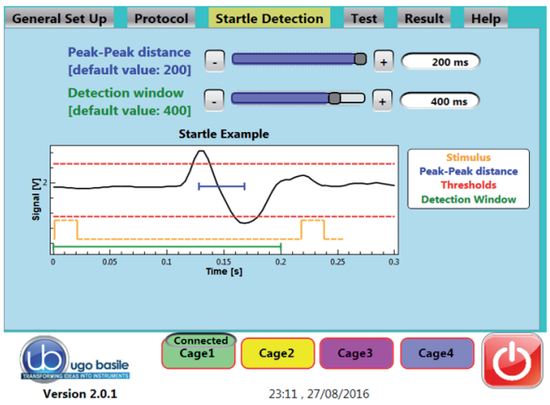
Controller **40500-001**, with the aid of the application software **48000-010**, consolidates all controls in a single compact unit and records data from up to 4 S/R Platforms. On its 12" touch-screen, the operator sets following parameters via the user-friendly interface:

Sound

- Pulse : in the range 100Hz-18KHz; 60-120dB
- Prepulse : 100Hz-18KHz; 60-120dB
- White Noise : 60-80dB

Light

- IR Light : 0-100% (Environment)
- Flash Light : 0–100% (20K Lux) (S/R Platform)



Software

Trials can be configured by entering the setting via the virtual keyboard: trial number, acoustic/visual stimulus and timing of the different experimental sequences:

- **Pulse**
- **Prepulse**
- **Inter-Pulse Interval**
- **Inter-Stimulus Interval**

all fully randomizable.

Startle Link-Box

This unit collects the signals from up to 4 Stimulating/Recording Platforms and sends them to the Controller.

Stimulating/Recording Platform

The S/R Platform is the core of the set-up, encompassing the box where the mouse is placed, the light and the speaker, which deliver the startling stimuli (pulses), and the detection system.

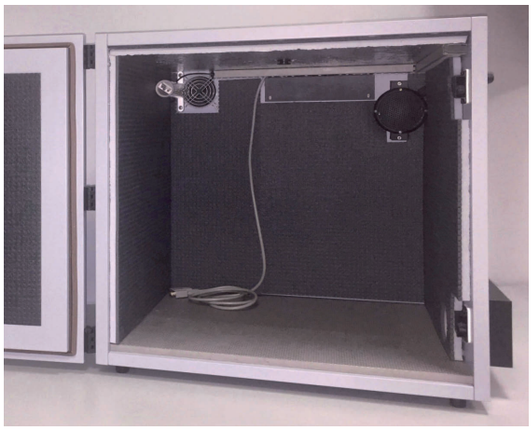
Mouse Box

Two Mouse Boxes are provided as standard:

- **48000-320** Small Mouse Box: ID 84x34x39(h)mm
- **48000-320** Large Mouse Box: ID 84x39x44(h)mm

Isolation Cubicle

The new-design Isolation Cubicle **46000-590** includes an I.R. light, a loudspeaker and a noiseless fan, all conveniently positioned inside the sound attenuating cubicle.



Multiple-cage set-ups include expansion-cubicle/s with slave electronics on board.

Ordering Information

48153	**Startle/PPI System, single cage set-up,** for mouse. Including touch-screen controller, startle link-box, isolation cubicle, stimulating/recording platform with 2 mouse boxes, software.
48253	**Startle/PPI System, two cage set-up**
48453	**Startle/PPI System, four cage set-up**
48003-003	**Additional Mouse Unit,** including isolation cubicle and stimulating/recording platform

Physical:

Shipping Weight : 40Kg
Packing : 82x71x57cm (wooden crate)
for a single cage system, including cubicle

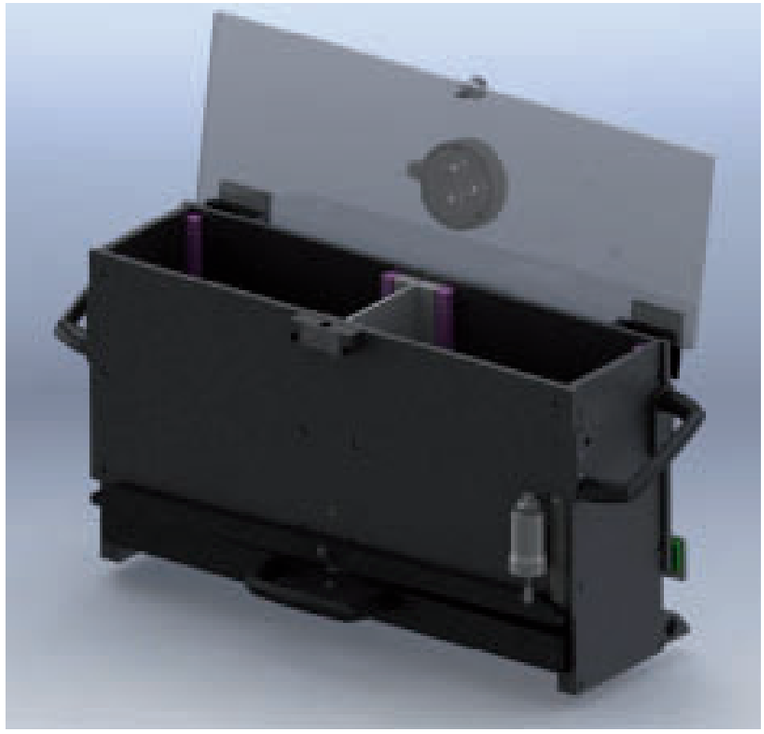
Bibliography

Method Papers

- M. Koch: "The neurobiology of startle" Prog Neurobiol. 59(2):107-28, 1999
- D. Braff et alia: "Human studies of prepulse inhibition of startle: normal subjects, patient groups, and pharmacological studies" Psychopharmacology 156(2): 234-258., 2001
- H.S. Hoffman et al.: "Startle Reaction: Modification By Background Acoustic Stimulation" Science 141: 928-30, 1963
- R.R. Marsh et alia: "The role of small changes in the acoustic environment in modifying the startle reflex" J Exp Psychol Anim Behav Process, 1(3): 1975

Active Avoidance Set-Up
(Automatic Reflex Conditioner)

Cat. No. 40532 Rats
Cat. No. 40533 Mice



General

The new model of **Active Avoidance Set-Up** has been designed to enable the researcher to perform a wide range of avoidance experiments, each according to a flexible schedule.

Via the TIMELINE feature, the user will be able to configure a number of different tests, according to the specific experimental needs, namely the classical shuttle-box tests in its various modes.

Ugo Basile Active Avoidance set-up instrument basically consists of a Controller, and a Cage for either rat or mouse.

The tests are conducted in a cage, divided into two sections by a partition with an intercommunicating opening at floor level.

The tilting floor ensures a simple and reliable detection mechanism to score the animal's movement across the two compartments.

The electronic unit encompasses all controls for up to 4 cages, and a scrambling shocker.

NEW VERSION

Multiple-Cage Set-up

EFFICIENT, RELIABLE INSTRUMENT FOR THE CLASSIC ACTIVE AVOIDANCE TEST

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!

Main Features

- **Maximum flexibility**: configure your own Avoidance-Experiment Schedules via the **timeline** function
- The electronic unit encompasses all controls for **up to 4 animal cages!**
- **Reliable tilting-floor detection mechanism**

NEW on the 2014 version!

- 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!

Ugo Basile: more than 10,000 citations

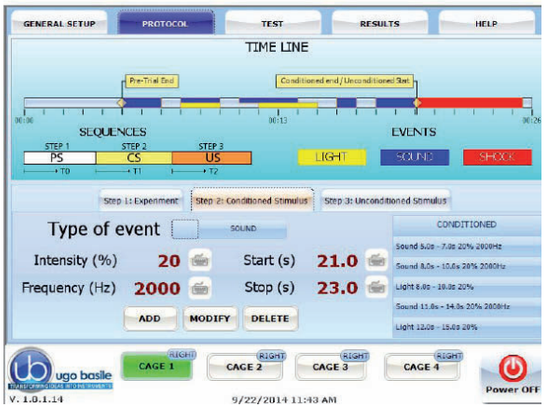
Instrument Description

Different set-ups, depending on animal (rat or mouse) and number of cages, can be obtained by combining the following elements:

- **Programming/Recording Unit with Shocker**
- **Rat Cage** (up to 4 with one controller)
  or
- **Mouse Cage** (up to 4 with one controller)
- **Expansion Box**, for multiple cage set-up

Programming/Recording Unit

The **40500-001** Programming/Recording Unit, encompassing all controls, incorporates a constant-current high precision 8-pole shocker, and 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 Unit, incorporating a 12" touch-screen, manages the Passive Avoidance Test via the **40530-010** Software. 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 trials can be configured via the **TIMELINE** feature, entering the setting via the virtual keyboard: trial number, the acoustic/visual stimulus, delay, shock intensity, and timing of the different experimental sequences:

PS: pre-stimulus interval (randomizable)
CS: conditional stimulus interval
US: unconditional stimulus interval.

Active-Avoidance Cage (shuttle-box)

Two types of cages are available:

- **40532** designed for **Rats**
  dimensioned 57x27x30(h)cm, I.D. 48x20x22(h)cm
- **40533** designed for **Mice**
  dimensioned 47x18x25(h)cm, I.D. 38x9x17(h)cm

Both cages are provided with acoustic and visual conditioning stimulators. The reinforcement consists of an electrical stimulus applied to the floor bars of the cage by an incorporated 8-pole "scrambling" circuit.

The cage is divided into two compartments intercommunicating by an opening at floor level.

When the animal crosses the door, the cage floor tilts, thus operating a reed arrangement, which cuts out all the stimuli or, if the crossing takes place during the pause, records the intertrial crossing.

Ordering Information

40500-001	**Programming/Recording Unit** & Shocker
40530-010	**P.A. Software** and activation
40532	**Rat Cage**, complete with catch pan
40533	**Mouse Cage**, complete with catch pan
40500-005	**Expansion Box**, for multiple cage set-up

Specifications :

Shock Duration	in steps of 0.1s
Shock intensity	0-3mA step 0,1mA
Light intensity	0-100%, in steps of 5
Sound intensity	0-100%, in steps of 5
Sound frequency	100-18.000Hz, in steps of 100Hz
Light, sound, shock start	in seconds, 0,1s precision
Light, sound, shock stop	in seconds, 0,1s precision

Physical:

Weight	2.7Kg	(40500-001)
	5.3Kg	(40532)
	3.4Kg	(40533)
Shipping Weight	4Kg	(40500-001)
	9Kg	(40532)
	5.8Kg	(40533)

Bibliography

Papers which quote Ugo Basile A.A.Test (previous model)

- D. Dimitrova, D. Getova: "**Effects of Rivastigmine on Learning and Memory Processes in Rats Active Avoidance Test**" Medicine 4.1, **2014**
- G.N. Carmona et alia: "**The Dense Core Vesicle Protein IA-2, but not IA-2β, is Required for Active Avoidance Learning**" Neuroscience 269 (6): 35-42, **2014**
- O. Ortiz et alia: "**Associative Learning and CA3–CA1 Synaptic Plasticity Are Impaired in D1R Null, Drd1a/ Mice and in Hippocampal siRNA Silenced Drd1a Mice**" J.Neuroscience 30 (37): 12288-12300, **2010**
- J.I. Lemos et alia: "**Involvement of the prelimbic prefrontacortex on cannabidiol-induced attenuation of contextual conditioned fear in rats**" Behav. Brain Res. 207: 05-111, **2010**
- N. Seferos et alia: "**Mandibular bone density and calcium content affected by different kind of stress in mice**" J Musculoskelet Neuronal Interact. 10 (3): 231-236, **2010**

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Passive Avoidance
Step-Through *New Model*

Cat. No. 40552 Rats
Cat. No. 40553 Mice

General

Passive Avoidance Test is used to assess memory function based on the association formed between a specific environmental context, which the animal learns to avoid, and an aversive stimulus, represented by a mild foot shock.

The tests are conducted in a two-compartment apparatus, where one is dimly lit and preferable to a rodent, and the other is brightly lit.

After the training period, during the test proper, the animal that learned the task will avoid the location previously paired with the aversive stimulus, and show greater latency to enter it.

Ugo Basile Passive Avoidance set-up instrument basically consists of a Controller, and a Cage divided into two compartments by a partition which embodies a sliding door.

The tilting floor ensures a simple and relaible detection mechanism to score the animal's movement across the two compartments.

Step-Through Cage

Multiple-Cage Set-up

EFFICIENT, RELIABLE INSTRUMENT FOR THE CLASSIC PASSIVE AVOIDANCE TEST

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!

Main Features

- The electronic unit encompasses all controls for **up to 4 animal cages!**
- **Silent and automated sliding door to divide the two compartments (no stepping motor!)**
- **Reliable tilting-floor detection mechanism**

NEW on the 2014 version!

- 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!

Ugo Basile: more than 10,000 citations

Instrument Description

Different set-ups, depending on animal (rat or mouse) and number of cages, can be obtained by combining the following elements:

- **Programming/Recording Unit with Shocker**
- **Rat Cage** (up to 4 with one controller)
  or
- **Mouse Cage** (up to 4 with one controller)
- **Expansion Box**, for multiple cage set-up

Programming/Recording Unit

The **40500-001** Programming/Recording Unit, encompassing all controls, incorporates a constant-current high precision 8-pole shocker, and 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 Unit, incorporating a 12" touch-screen, manages the Passive Avoidance Test via the **40550-010** Software. 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.

Passive-Avoidance Cage (step-through)

Two types of cages are available:

- **40552** designed for **Rats**
  dimensioned 57x27x30(h)cm, I.D. 48x20x22(h)cm
- **40553** designed for **Mice**
  dimensioned 47x18x25(h)cm, I.D. 38x9x17(h)cm

The cage is divided into two sections, the **START** and **ESCAPE** compartments. The start compartment is white and **illuminated** by a light fixture (3LED, white-light); the escape compartment is **dark** and its grid floor is connected to the shocker.

The two compartments are divided by a partition which embodies an automatically operated sliding door at floor level. The **door delay** and the **shock parameters** can be preset on the touch-screen of the controller, according to experience or data suggested by the literature.

With the rodent in the START compartment, the START button activates the timer, providing the **opening of the door** after the preset delay.

The opening of the door enables the **latency timer**, which stops at the animal crossing; latency time is displayed in 0.1s steps. The door shuts one second after the crossing, to prevent the the animal being upset or hurt by a too close door operation.

Ordering Information

40500-001	**Programming/Recording Unit** & Shocker
40550-010	**P.A. Software** and activation
40552	**Rat Cage**, complete with catch pan & sliding door assembly
40553	**Mouse Cage**, complete with catch pan & sliding door assembly
40500-005	**Expansion Box**, for multiple cage set-up

Specifications :

Latency Time	5-digit Read-Out, 0.1s steps
Door Delay	0-99s, in steps of 1s
Shock Duration	0.1-9.9s, in steps of 0.1s
Shock Intensity	0.1-9.9mA, in steps of 0.1mA
CutOff Time	1-600s, in steps of 1s

Physical:

Weight	2.7Kg	(40500-001)
	5.3Kg	(40552)
	3.4Kg	(40553)
Shipping Weight	4Kg	(40500-001)
	9Kg	(40552)
	5.8Kg	(40553)
Packing	80x60x44cm (Control Unit & one cage)	

Bibliography

Papers which quote Ugo Basile P.A. Test (step-through)

- C.I. Navarro-Francés et alia: "**Influence of trait anxiety on the effects of acute stress on learning and retention of the passive avoidance task in male and female mice**" Behav. Processes 105: 6-14, **2014**
- L. Zvejniece et alia: "**The cognition-enhancing activity of E1R, a novel pos-itive allosteric modulator of sigma-1 receptors**" Br. J. Pharmacol. 171(3): 761-771, **2014**
- R.W. Flint et alia: "**NMDA receptor antagonism with MK-801 impairs consolidation and reconsolidation of passive avoidance conditioning in adolescent rats: Evidence for a state dependent reconsolidation effect**" Neurobiology of Learning and Memory 101: 114-119, **2013**
- G. Telegdy et alia: "**The action of kisspeptin-13 on passive avoidance learning in mice. Involvement of transmitters**" Behav. Brain Res. 243: 300-305, **2013**
- V. Capurro et alia: "**Pharmacological Characterization of Memoquin, a Multi-Target Compound for the Treatment of Alzheimer's Disease**" PLoS ONE 8(2): e56870, **2013**
- J. Michaud et alia: "**Hematopoietic MyD88-adaptor Protein Acts as a Natural Defense Mechanism for Cognitive Deficits in Alzheimer's Disease**" Stem Cell Reviews and Reports 8 (3): 898-904, **2012**

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Passive Avoidance
Step-Down *New Model*

Cat. No. 40570

General

The **Passive Avoidance step-down cage**, **for mice or immature rats**, is based on the step-down scheme in which the animal is dropped on an elevated platform which becomes uncomfortable because of vibrations.

The instrument basically consists of an **arena**, shaped as a cage (Cat. No. **47573)** and a control unit with touch-screen

The method is based on the mouse tendency to step-down a small platform, uncomfortable because of vibrations, onto the floor of the testing apparatus., which is electrified.

The animal inhibs its behaviour in order to avoid shock; this is measured by longer latency or refusal to step down. Latency is used to assess memory.

Increase or decrease of the **retention latency** gives an indication of improvement or impairment in memory and learning processes.

Step-Down Cage

Multiple-Cage Set-Up

Measures the increase/decrease of retention latency to study memory & learning processes

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!

Main Features

- The electronic unit encompasses all controls for **up to 4 animal cages!**
- **Specifically designed for mice or immature rats**
- **Latency time recorded down to 0.1 seconds**

NEW on the 2014 version!

- 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!

Ugo Basile: more than 10,000 citations

Instrument Description

Different set-ups, depending on the number of cages, can be obtained by combining the following elements:

- **Programming/Recording Unit with Shocker**
- **Mouse Cage** (up to 4 with one controller)
- **Expansion Box**, for multiple cage set-up

Programming/Recording Unit

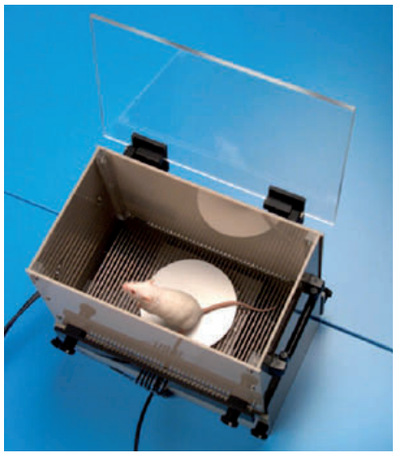
The **40500-001** Programming/Recording Unit, encompassing all controls, incorporates a constant-current high precision 8-pole shocker, and manages data acquisition: data are stored inside the unit and can be downloaded via the USB key provided as standard, for further processing via Excel, Access, etc.

The Unit, incorporating a 12" touch-screen, manages the Passive Avoidance Test via the **40570-010** Software. 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.

Passive Avoidance Cage (step-down)

The cage, dimensioned 28(w)x23(d)x26(h)cm, is provided with a top lid; the cage floor is made of 0.2cm diam. bars, spaced 0.5cm apart, wired to the constant current 8-pole scrambling circuit, located in the control unit.



The detachable circular platform, diam. **7cm**, is positioned at the centre of the cage, on a protruding stud fastened to the actuator, the mechanism which energizes the platform vibration.

A larger platform diam. **11cm**, is also supplied with the standard package.

Principle of Operation

When the elevated platform onto which the animal is dropped becomes uncomfortable because of vibrations, the animal steps down to an electrified grid.

When the mouse confronts the electrified grid and re-turns to the platform, the stop command (or pedal switch) is used to halt platform vibration, and stop the latency counter; the touch-screen controller records the latency time in tenths of seconds.

The latency figure remains frozen until a new "session" is started. experimental data are stored inside the controller memory, for further processing.

The vibration intensity is selected from 10 to 100Hz, in 10 steps (10Hz each). The shock intensity can be preset in the range 0 to 3mA, in steps of 0.1mA.

A delay up to 15 seconds can be set in steps of 1s.

Ordering Information

40500-001	**Programming/Recording Unit** & Shocker
40570-010	**P.A. Software** and activation
47573	**Mouse Cage**, complete 2 platforms
40500-005	**Expansion Box**, for multiple cage set-up

Specifications

Start	from the touch screen, or via pedal switch
Stop	from the touch screen, or via pedal switch
Vibration	10-100Hz, in 10 steps (10Hz each)
Shock	0 to 3mA, in 0.1mA steps
Delay	0-15 seconds, in 1s steps.
Latency Time	0.1s steps

Physical

Dimensions	28(w)x23(d)x26(h)cm (**Cage**)
Dimensions	33(w)x25(d)x5.5(h)cm (**Control Unit**)
Weight	8Kg
Shipping Weight	16Kg (approx.)
Packing	80x60x44cm

Bibliography

Papers which quote the P.A. Test (step-down)

- A. Mikulecká et alia: "**Consequences of early postnatal benzodiazepines exposure in rats. I. Cognitive-like behavior**" Front. Behav. Neuroscience 8 : 101, **2014**
- I.K. Celikyurt et alia: "**Effect of harmane, an endogenous β-carboline, on learning and memory in rats**" Pharmacol. Biochem. & Behavior 103: 666-671, **2013**
- D.S. Dimitrova & D.P. Getova-Spassova: "**Effects of Galantamine and Donepezil on Active and Passive Avoidance Tests in Rats With Induced Hypoxia**" J. Pharmacol. Sciences 101 : 199-204, **2006**
- M. Sakaguchi et alia: "**Effects of beta-casomorphin-5 on passive avoidance response in mice**" Biosci.Biotechnol. Biochem 67 (11): 2501-2504, **2003**

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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.

IDEAL TO STUDY

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

New Model

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!

Main Features

- Ramdomizable 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!

Ugo Basile: more than 10,000 citations

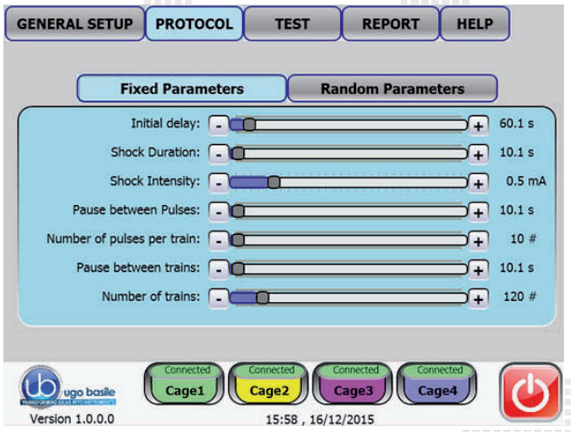
System Description

Different set-ups, depending on animal (rat or mouse) and number of cages, can be obtained by combining the following elements:

- **Touch-Screen Controller with Shocker**
- **Rat Cage** (up to 4 with one controller)
  or
- **Mouse Cage** (up to 4 with one controller)
- **Expansion Box**, for multiple cage set-up

Programming/Recording Unit

The **40500-001** Programming/Recording Unit, encompassing all controls, incorporates a constant-current high precision 8-pole shocker, and 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 Unit, incorporating a 12" touch-screen, manages the Learned Helplessness Test via the **40530-010** Software. 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 trials can be configured on the touch-screen controller, entering the setting via the virtual keyboard: train features, shock and timing of the different experimental sequences.

The system includes a user-friendly reporting software, to collect, visualize and manage data related to the delivered shocks; his is especially important to analyze the randomized shocks and have full control on the performed stimulation.

Randomizer

The **Touch-Screen 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. It connects to up to 4 cages.

Rat and Mouse Cage

The dimensions of **Rat Cage 47502** are 22x22x20(h)cm; **Mouse Cage 47503** is dimensioned 17x17x20 (h) cm.

Both Cages include an electrified floor and a catch pan.

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!

Ordering Information

40500-001	**Touch-Screen Controller** & Shocker
47500-010	**Learned-Helplessness Software** and activation
47502	**Rat Cage**, complete with electrified floor & catch pan
47503	**Mouse Cage**, complete with electrified floor & catch pan
40500-005	**Expansion Box**, for multiple cage set-up

Specifications :

Power Requirement 115/230V, 50/60Hz, 30W max.

Shock Parameters : constant current, from 0.1 to 2.9mA in 0.1mA steps

Manual or external operation (via 5V TTL signals), with optional I/O box 46000-150

Physical:

Weight	3.9Kg	(40500-001)
	5.3Kg	(47502)
	3.4Kg	(47503)
Shipping Weight	5.7Kg	(40500-001)
	9Kg	(40552)
	6Kg	(40553)
Packing	80x60x44 (control unit & one cage)	

Bibliography

- Method: W.H. Freeman: "**Helplessness: On Depression, Development, and Death**" ISBN 0-7167-0752-7. (Paperback reprint edition, W.H. Freeman, ***1992***, ISBN 0-7167-2328-X)
- K. Szklarczyk et alia: "**Opioid-Dependent Regulation of High and Low Fear Responses in two Inbred Mouse Strains**" Behav. Brain Res 292: 95-101, ***2015***
- Guilherme dos Santos et alia: "**Antidepressive-like effects of electroacupuncture in rats"** Physiology & Behavior 93: 155-159, ***2008***
- Kademian et alia: "**Biphasic effects of adrenal steroid on learned helplessness behavior by inescapable shock"** Neuropsychopharmacology 30: 58-66, ***2005***
- Borsini & Cesana: "**Mechanisms of action of flibanserin in the learned helplessness in rats**." European Journal of Pharmacology 433: 81-89, ***2001***
- Grau et alia: "**Long-term analgesia and activation of the opiate system"** Science 213:1409-1411, 1981

www.ugobasile.com

Conditioned Place Preference Box (CPP)

Cat. No. 42552 for Rat
Cat. No. 42553 for Mouse

General

The **Ugo Basile Conditioned Place Preference (CPP)** is a 2-compartment box to evaluate the abuse potential of substances and the motivational effects of drugs.

The 2 compartments differ for the wall color and patterns and for the floor patterns and texture.

Both floors and contexts floors are interchangeable so that the visual and tactile difference between the 2 compartments can be easily adjusted by the scientist.

In fact, the CPP box includes the contextual cues required by the experimental paradigm; each box includes:

- 4 interchangeble floors with square and circular patterns
- 3 sets of walls.

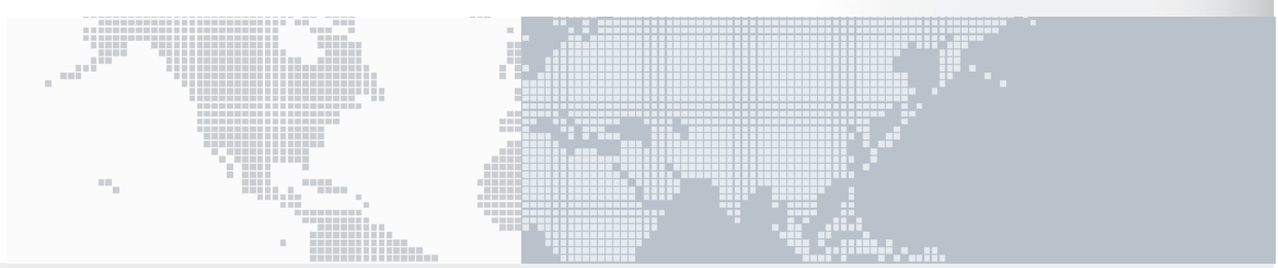
The new CPP box has been designed and optmized for visual scoring, or for use with any video-tracking software. See www.ub.anymaze.com.

IDEAL TO STUDY

Drug Abuse

Addiction

- **Interchangeable floors for tactile stimulation**
- **NEW MODEL with interchangeable CONTEXTS**



Main Features

- Optimized for Video-Tracking
- Specific models for rats or mice
- Designed for multiple-cage systems
- Interchangeable floors provided for different patterns & texture
- Walls in either compartment can be visually altered, by replacing the context kit

Ugo Basile: more than 10,000 citations

Rat and Mouse Box

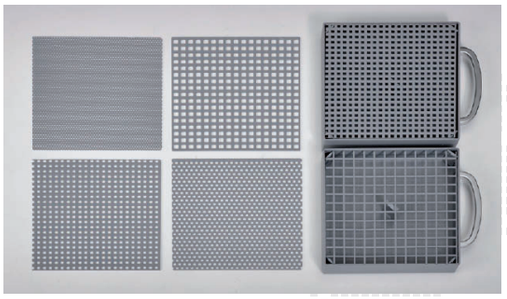
The box **42552** is designed for tests on rats. Its external dimensions are **60x30x30(h)cm**; the box **42553** is similar to the 42502, but its dimensions (**32x15x25(h)cm**) make it suitable for use with mice.

Both boxes have a patterned door in the central wall, 7.5x7.5cm in the rat, 4x6(h)cm in the mouse box.

Tactile Stimulation: Patterned Floors

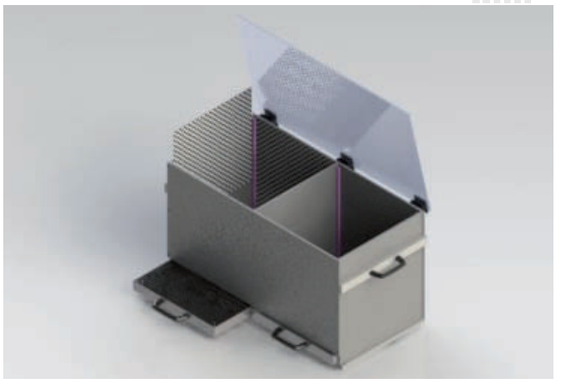
One of the major keys to the success of a **CPP** experiment is due to the design of the visual and tactile differences between the 2 compartments.

Ideally the 2 compartments should have clearly distinct contextual cues but should not determine any preference in unconditioned animals.



Given the importance of **paw tactile sensitivity** in rodents, while the design of commercially available CPP boxes has traditionally focused only on the wall patterns and colors, the Ugo Basile CPP box includes 4 interchangeable floors with different patterns & texture.

Four sets of floor grids, and 3 sets of replaceable wall contexts (striped, checked, and dotted) are supplied with each box:



Walls with **different texture** can be provided on request: please ask for information!

Rationale and outline of the procedure

The CPP paradigm provides information on the rewarding or aversive effects of visible and tactile contextual cues associated with drugs.

This technique has acquired great popularity in research studies involving addiction, being much easier, if compared to drug self-administration procedures.

First, the animal is conditioned to identify one of the two compartments with the drug experience. Then the time spent in each compartments is measured; preference or aversion to the drug-paired compartment, hence rewarding/aversive properties of drugs, can be easily deducted.

The CPP test only requires the animal to carry out a simple operation (i.e. move from one compartment to the other) to approach or avoid the drug-paired compartment; the animal is expected to spend more time in the drug-paired compartment, if the drug experience produced a positive effect.

Optimized For Video-Tracking

All floors are grey-colored, to optimize contrast and facilitate tracking of both dark and albino animals.

Ordering Information

42502	**CPP BOX for RAT,** including
M-TR 230-F	Floor Drawer (2 pcs.)
42502-011	Round 2mm holes, 6mm interax. (2 pcs.)
42502-012	Round 12mm holes, 16mm interax. (2 pcs.)
42502-014	Square 6x6mm holes, 9mm interax. (2 pcs.)
42502-013	Square 10x10mm holes, 12mm interax. (2 pcs.)
42552-320	**Wall Context Kit for Rat Cage**
Weight	22Kg net, 25Kg gross; Packing: 80x60x44cm

42503	**CPP BOX for Mouse,** including:
M-TR 238-F	Floor Drawer (2)
42503-012	Round 2mm holes, 3mm interax., 2 pcs.
42503-011	Round 4mm holes, 6mm interax., 2 pcs.
42503-013	Square 4x4 holes, 7mm interax., 2 pcs.
42503-014	Square 6x6 holes, 9mm interax., 2 pcs.
42553-320	**Wall Context Kit for Mouse Cage**
Weight	8Kg net, 10Kg gross; Packing: 36x55x45cm

Acknowledgements & Bibliography

A special thank to Prof. Paola Fadda (Department of Pharmacology, University of Cagliari, Italy) for the initial design of the boxes: her valuable comments and suggestions allowed us to keep the focus on the user needs and opinions.

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- M. Scherma et alia: "**Inhibition of Anandamide Hydrolysis by Cyclohexyl Carbamic Acid 3'-Carbamoyl-3-yl Ester (URB597) Reverses Abuse-Related Behavioral and Neurochemical Effects of Nicotine in Rats**" J. Pharmacol. and Exper. Therap." 327:482–490, **2008**

Lickometer - Vogel Test

Cat. No. 45100 Set-up for Rat
Cat. No. 45150 Set-up for Mouse

General

The **Ugo Basile Lickometer - Vogel Test** is a versatile system that can function as a simple software-based lickometer or as a Drinking-Conflict set-up to assess the anxiolytic effect of drugs.

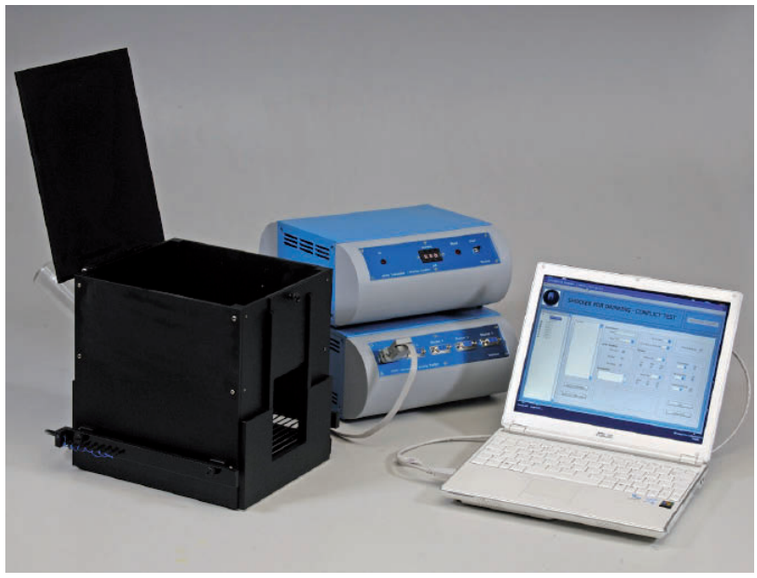
In the Drinking-Conflict Vogel paradigm, a water deprived animal is exposed to a lickometer and the licking events are coupled to electric shocks.

The animal is in a motivationally conflicting situation, hence his licking behavior is affected by anxiety and anxiolytic drugs.

The Lickometer controller and software can manage up to 5 animal cages for either rat or mouse; one shocker is required for each cage.

The friendly-to-user software, provided as standard, manages the system and experimental configuration, collects and saves the experimental data, and provides a detailed report.

Data are saved as .csv file and .rpt file (a proprietary format which can be opened only within the Lickometer software)



Specific Models

for Rat

for Mouse

- **Vogel Conflict Test**
- **Lickometer**
- **Anxiety Testing**
- **Multiple Chambers**

Main Features

- Up to 5 animal chambers with grid floor, lick sensor, water reservoir
- Software for experiment configuration and data collection
- Two-pole shockers with adjustable shock intensity
- Chambers can be used as a general lickometer

Rationale of the Test

The Drinking Conflict Vogel test usually consists 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)

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 phases 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.

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.

System Components

The system is composed of:

- USB-Control Unit for up to 5 cages, including
  - Software
- Drinking Conflict Cage
- 2-Pole Sine-Wave Shocker

Animal Cages

Drinking-conflict cages are provided with grid floor, electrified sipper and lick sensor. Two sizes are available, for rats and mice.

The rat cage inside dimensions are 35(w)x25(d)x30(h)cm.

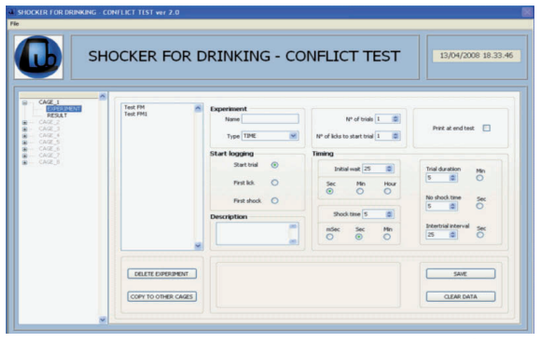
The mouse cage is dimensioned 20(w)x24(d)x20(h)cm.

Lickometer Software

The following parameters, which define the experimental configuration can be set via the software for each cage:

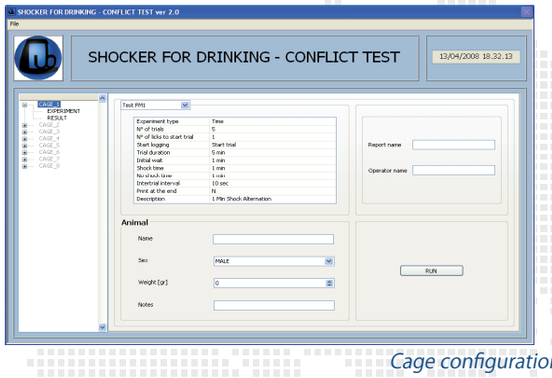
- Trial duration
- Initial Pause
- Time Intervals with and without shock
- Number of licks to deliver a shock

etc.



Experiment configuration

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



Cage configuration

The software collects the experimental data and saves them as .csv file & .rpt file (the latter a proprietary format which can be opened only within the Lickometer software). A complete report file is provided at the end of the experiment; results can be automatically printed and exported into a datasheet.

Ordering Information

45100	**Lickometer Set-up for RAT, one cage,** including:
45100-002	**Rat Cage**
45100-001	5-channel Electronic Unit
45100-005	Software
45100-004	Shocker
45100-302	Instruction Manual
45150	**Lickometer Set-up for MOUSE, one cage**:
45100-003	**Mouse Cage**
	and other components as for 45100

Physical	**45100**	**45150**
Weight	8.5Kg	7.5Kg
Packing	80x60x44cm	80x60x44cm
Shipping Weight	12Kg	10Kg

Bibliography

- P. Ohara et alia: "**Evidence for a Role of Connexin 43 in Trigeminal Pain Using RNA Interference In Vivo**" J. Neurophysiol 100: 3064-3073, **2008**
- J.P. Vit et alia: "**Silencing the Kir4.1 Potassium Channel Subunit in Satellite Glial Cells of the Rat Trigeminal Ganglion Results in Pain-Like Behavior in the Absence of Nerve Injury** " J. Neurosc. 28(16): 4161-4171, **2008**

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Sociability Apparatus

(3-chambered social test)

Cat. No. 46553

General

Research has shown that, although human social behavior is generally more complex, humans and animals share some aspects of social behavior.

The 3-chambered test is a valuable tool to assess general sociability and interest in social novelty in rodent models of CNS disorders.

Rodents normally prefer to spend time with another rodent (**sociability**) and will investigate a novel intruder more than a familiar one (social novelty).

Based on these inclinations, the Three Chamber Test can help identify rodents with deficits in sociability and/or social novelty.

The **Ugo Basile Sociability Apparatus** consists of a 3-chambered cage, with grey opaque walls, a special non-reflective grey-colored floor and 2 grid enclosures.

Many authors (e.g. Moy et al. 2004; Nadler et al. 2004) have shown that a 3-chambered box can be used to test:

- Social Novelty Preference
- Sociability
- Dominance
- Autism

FOR STUDIES

- Autism
- Social Memory & Novelty
- Pair-bonding
- Dominance hierarchies

Main Features

- **Works even with the most basic video-tracking software**
- **Grid Enclosures maximize animals interaction**
- The grey floor gives high contrast with both light and dark animals
- The special painting gives a slightly rough surface, pleasant for the animals to walk on.
- **A model with transparent walls is available**
- **Sociability Cages dimensioned for Rat (120x80x40(h)cm) is available**

Ugo Basile: more than 10,000 citations

Rationale and Outline of the Procedure

The Ugo Basile 3-Chambered Apparatus can be used with many different procedures.

In their 2004 paper, Moy and co-authors (see bibliography), describe a typical protocol: after a period of habituation a mouse sociability is determined by measuring the time spent by the freely-moving subject in the proximity of the grid enclosures containing the first 'stranger' mouse.

A second 'stranger' mouse is then introduced in the box and the preference for the new 'stranger' mouse can be easily assessed.

3-Chamber Box & Grid Enclosures

The 46553 perimetral walls and internal partitions of grey opaque PVC form a **3 compartment box**, each **20x40x22(h)cm**; two **sliding doors** (5x8(h)cm), opening on the central compartment, can be closed to confine the animal.

Partitions can be easily removed for cleaning (or replaced with transparent ones, if preferred). Transparent lids 46503-320 can be ordered as optional.

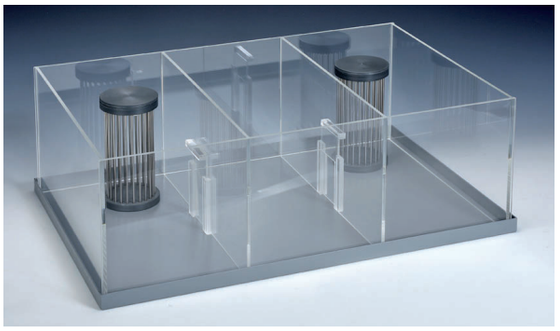
The grey metal floor gives high contrast with both light & dark animals, allowing for automated video-tracking of the animals.

Its special painting also gives a slightly rough surface, pleasant for the animals to walk on.

The grid enclosures allow mice to interact closely; the grid bars have a diameter of 3mm and are spaced 7mm.

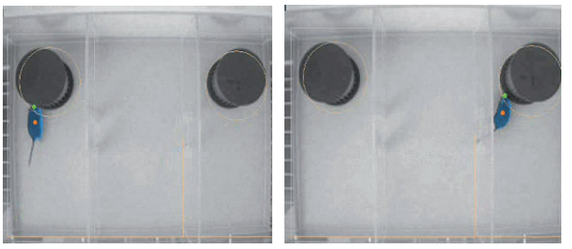
The standard **enclosures** are 15cm tall with an I.D. of 7cm. The top and the bottom are made of grey (**46503-003**) or white (**46503-013**) PVC.

Model 46503 with transparent walls is also available: the clear Perspex is ideal for visual observation of the experiment or for side positioning of the video-camera.



Optimized for Video-Tracking

The grey floor gives best contrast to both light and dark animals, which is the most critical factor for **all video-tracking softwares** to work properly.



Images and videos, courtesy of Dr. Patrizia D'Adamo (San Raffaele Institute, Milan, Italy)

Ordering Information

46553 **Mouse Cage for 3-Chamber Sociability Test, opaque walls & internal partitions (no lids).** With 2 grid cages (grey, I.D. 7cm, height 15cm)

46503 **Mouse Cage for 3-Chamber Sociability Test, transparent walls, internal partitions and lids.** With 2 grid cages (**grey**, I.D. 7cm, h 15cm)

46513 **Mouse Cage for 3-Chamber Sociability Test, transparent walls, internal partitions & lids.** With 2 grid cages (**white**, I.D.7cm, h15cm)

46552 **Rat Cage for 3-Chamber Sociability Test, opaque walls & internal partitions (no lids).** With 2 grid cages (grey, I.D. 15cm, h 25cm)

46502 **Rat Cage for 3-Chamber Sociability Test, transparent walls, internal partitions and lids.** With 2 grid cages (grey, I.D. 15cm, h 25cm)m, 15cm(h)

Physical	Mouse	Rat
Dimensions	60x40x22(h)cm	120x80x40(h)cm
Weight	9Kg	18Kg
Shipping Weight	12Kg	25Kg
Packing	67x42x53cm	Pallet

Bibliography

- A.J. Mierzwa et alia: "**FGF2 and FGFR1 Signaling Regulate Functional Recovery Following Cuprizone Demyelination**" Neuroscience Letters 548: 280-285, **2013**
- M. J. Kane et alia: "**Mice Genetically Depleted of Brain Serotonin Display Social Impairments, Communication Deficits and Repetitive Behaviors: Possible Relevance to Autism**" PLoS ONE 7(11): e48975, **2012**
- M. Yang et alia: "**UNIT 8.26 Automated Three-Chambered Social Approach Task for Mice**" Current Protocols in Neuroscience Published Online: 1 July **2011**

Method Papers

- S.S. Moy et alia: "**Sociability and Preference for Social Novelty in Five Inbred Strains: an Approach to Assess Autistic-Like Behavior in Mice**" Genes, Brain and Behavior 3(5):287-302, 2004
- J.J. Nadler et alia: "**Automated Apparatus for Quantitation of Social Approach Behaviors in Mice**". Genes, Brain and Behavior 3(5): 303–314, 2004.

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"ATLANTIS" PLATFORMS

for WATER MAZE experiments

Cat. No. 40100-40400

LIFTING CONTROL

LOWERING CONTROL

NO ELECTRICITY

NO HANDS IN THE POOL !

Why Automated Platforms?

Despite being very effective, the **Morris Water Maze** task has some limitations, related to the platforms normally used having fixed height, which cannot be raised during probe tests. Probe tests run with the use of a **lift platform** give more reliable indications on the presence of true **spatial learning**.

The Ugo Basile Atlantis Platforms are made of clear Perspex and are operated by hydraulic pressure. No electricity is present inside the pool; the electrical parts of the mechanism (i.e. the electro-hydraulic actuators) are safely located outside.

Main Features

- 4 Platforms with one Controller
- Remote lifting/lowering control
- Manually or PC-Operated
- Consistency of positioning in the 4 quadrants
- No more hands in the pool!
- No Electricity in the pool

Ugo Basile: more than 10,000 citations

System Description

Up to **4 platform/motor combination** connect to the 4-channel control unit.

Each platform is **driven independently**, so that the Water Maze experiment can be completely automated by positioning a platform in each of the 4 quadrants of the pool.

Once the 4 platforms have been positioned in the pool, each is connected to the related external motor, via the connectors conveniently fitted to the water tank (*ask for information about our models!*); the whole experiment can then be run automatically, via the control unit or external triggers.

Specifications

- 4 independent channels : manual or TTL mode
- Platform vertical range : 25-35cm
- Vertical travel : 10cm, in 9 steps
- Platform Speed : 10mm/s
- Platform diameter : 10cm

Manual or Automated Modes

The platforms go up and down in steps of 1 cm, for a total vertical travel of 10 cm.

Different operation modes are possible using Ugo Basile Atlantis platform system: in the **manual** mode the vertical travel is controlled by simply depressing a key.

In the **automated mode** the platforms can be operated by external triggers (**TTLs**), controlled by any videotracking software.

Each platform can be kept submerged, and raised automatically when the animal swims above it. This protocol allows one to exclude from the test "navigation strategies" in which spatial memory is not involved.

plaftorm up →

↓ platform down

When used as stand-alone tool, without motor/controller, the Atlantis hydraulic **platform 40101-002** can also conveniently replace standard fixed platforms.

Ordering Information

40100 **Complete 1-Platform System**, including standard components as listed below

40400 **Complete 1-Platform System**, including standard components as listed below

		40100	40400
40100-001	4-Channel Controller	1	1
40101-002	Platform	1	4
40101-003	Motor	1	4
40101-320	Connection Cable	1	4
40101-321	100ml Syringe	1	4
40101-322	Stretch of Tube (3m)	1	4
40100-302	Instruction Manual	1	1
E-WP 008	Mains Cable	1	1

Available Accessories

40101 Additional platform and motor assembly

Ask for information about our Water Mazes and ANY-maze videotracking software

Physical		40100	40400
Weight	Kg	11	30
Shipping Weight	Kg	17	39
Packing	cm	80x60x44	(x2)

Bibliography

- R.I.W. Spooner et al.: "**The Atlantis Platform: A New Design and Further Developments of Buresova's On-demand Platform for the Water Maze**" Learn. Mem. 1: 203-211, 1994
- G. Riedel et al.: "**Reversible Neural Inactivation Reveals Hippocampal Participation in Several Memory processes**" Nature Neurosc. 2 (10): 898-905, 1999
- I.Q. Wihshaw et al.: "**The Behavior of the Laboratory Rat: A Handbook with Tests"** Oxford Univ. Press, USA: 1, 2004

ugo basile
TRANSFORMING IDEAS INTO INSTRUMENTS

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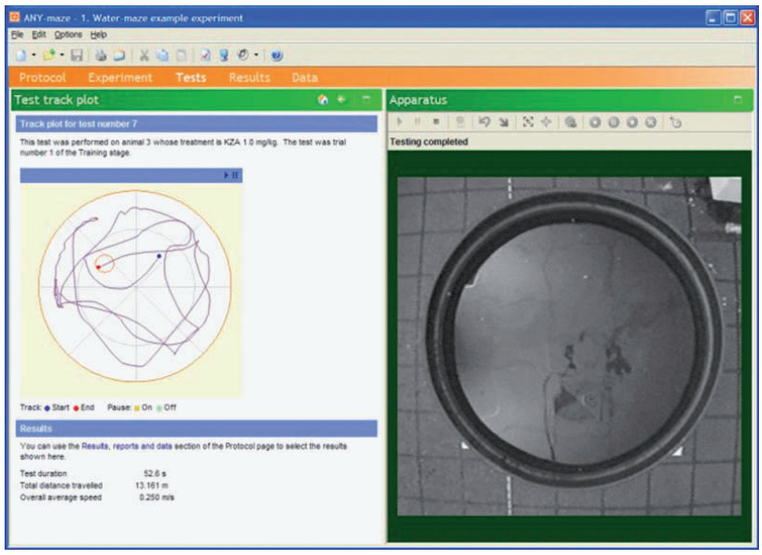
http://ub.anymaze.com/

ANY-maze

Advanced Videotracking

Cat. No. 60000



General

ANY-maze is a flexible video tracking system designed to automate testing in behavioural experiments.

Packed with advanced features ANY-maze is one of the most comprehensive video tracking systems available today

Flexibility

With a single ANY-maze system you can easily automate a range of apparatus, for example, a plus maze, a water maze and a set of 6 locomotor activity boxes.

User-friendly interface and flexibility

Compatible with most cameras and digitizers

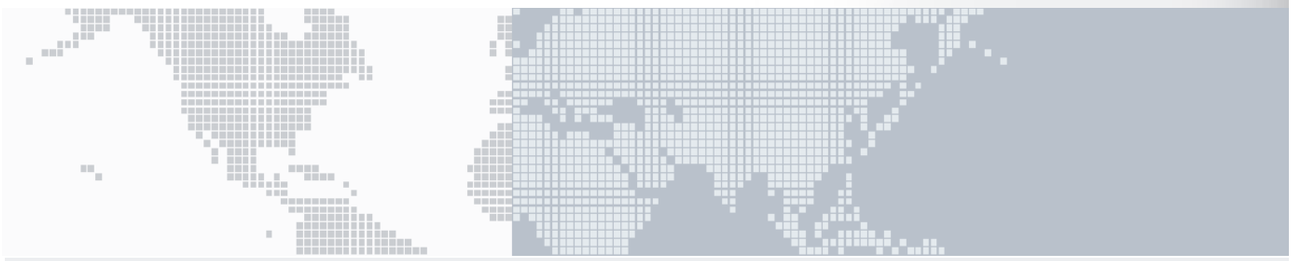
Take a tour and see for yourself

The quickest way to learn more about ANY-maze is to take a brief introductory tour...

Download ANY-maze and try it out

Why not try ANY-maze for yourself - you can download the complete system for free!

We've even included some experiment videos so you can see the tracking in action.



Video tracking your animals in a wide range of behavioural apparatus:

- Morris Water-Mazes
- Elevated Plus Mazes
- O-T- Y-Mazes
- Radial Mazes
- Open Fields
- Home Cages
- Metabolic Cages
- Place Preference Boxes
- Porsolt Forced Swim Tests
- Tail Suspension Tests

Ugo Basile: more than 10,000 citations

Equipment

ANY-maze's flexible design makes it easy to set up experiments in a wide range of different apparatus: plus maze, water-maze, T-maze, activity boxes, forced swim test, open-field cages, Fear Conditioning, etc.

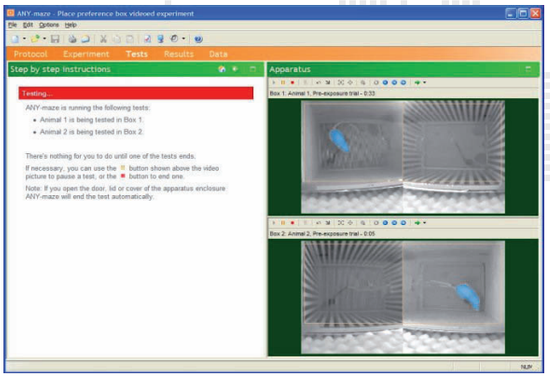
Our extensive range of **high-quality mazes** & test apparatus have been designed in cooperation with experienced behavioural scientists and are optimized for video tracking, include

What's more, all our mazes and test apparatus can be automated using the standard version of ANY-maze; so you only need **a single piece of software to automate any of these tests**; additionally, some devices, such as our **Fear Conditioning system** are available with low-cost versions of ANY-maze specific to the device.

Simultaneous Testing

Using ANY-maze you can perform tests in **up to sixteen pieces of apparatus simultaneously**. This provides a great way to increase throughput and also makes it easier to control for environmental variables.

And ANY-maze's versatile camera management means you can use one camera, or many, to view the apparatus. For example, in these place preference boxes four cameras are being used, one on either side of each box.



Cameras & Computers

With such flexibility, how do you determine the computer, cameras etc., that you'll need?

The answer's provided by the **ANY-maze equipment wizard** which quizzes you about all the apparatus you want to automate and then creates a detailed report of the equipment required.

You can use ANY-maze with inexpensive USB web-cams, high quality 'machine-vision' USB cameras, DV camcorders or almost any analogue CCTV camera.

This breadth of support not only makes it easy to find a compatible device (indeed, you may already own one), but also means that the system can meet a range of differing requirements, such as low cost, notebook connectivity, simultaneous capture from multiple cameras, tracking in darkness, etc.

Compatible with Windows 7

ANY-maze has been designed to work with modern computers running Windows Vista, Windows XP, Windows 7.

However, that doesn't mean you can't use it with older equipment or other versions of Windows check **computer compatibility** on our web site.

Ordering Information

60000	**ANY-MAZE LICENSE, including technical support and updates for 1 year**
60050	ANY-Maze, **1 year support extension (*)**
60000-FC	ANY-Maze, **Freezing detection only**, for Fear Conditioning
47400-030	USB Camera, with 2.1 & 4.3 lenses, visible block filter, cables, and ceiling support
47400-010	Black and white high sensitivity videocamera including varifocal day & night lens & ceiling support
47400-011	Analogue-Digital Converter PCI RTV24, 4 channels, for connection of 47400-010 to desktop PC. Complete kit including cables
47400-012	Analogue-Digital Converter FireWire, 1 channel, for connection of 47400-010 to laptop PC. Complete kit including FireWire adaptor, cables & power supply

ANY-maze License

How ANY-maze licensing works

- You can download ANY-maze from this site for free and install it on any number of computers.
- You only need a license for copies which will be used for tracking - you can use other, free copies to set up experiments, analyse results, transfer data etc.
- To license a copy of ANY-maze, so you can use it for tracking, you supply us with its serial number and pay the purchase price. We then supply you with your license number which will **permanently** enable the tracking system and will permit updates to be installed for a period of 1 year.

What's included in the price

- The ANY-maze software itself.
- All updates to the system for a period of 1 year.*
- Technical support for a period of 1 year.*

* Extended Support

- When you purchase ANY-maze, we supply technical support and all upgrades for a period of 1 year.
- To get support and upgrades after this period you need to purchase an extended support contract.
- When you purchase an extended support contract we will supply you with a new ANY-maze license number, this will permit updates to be installed for a further period of one year.

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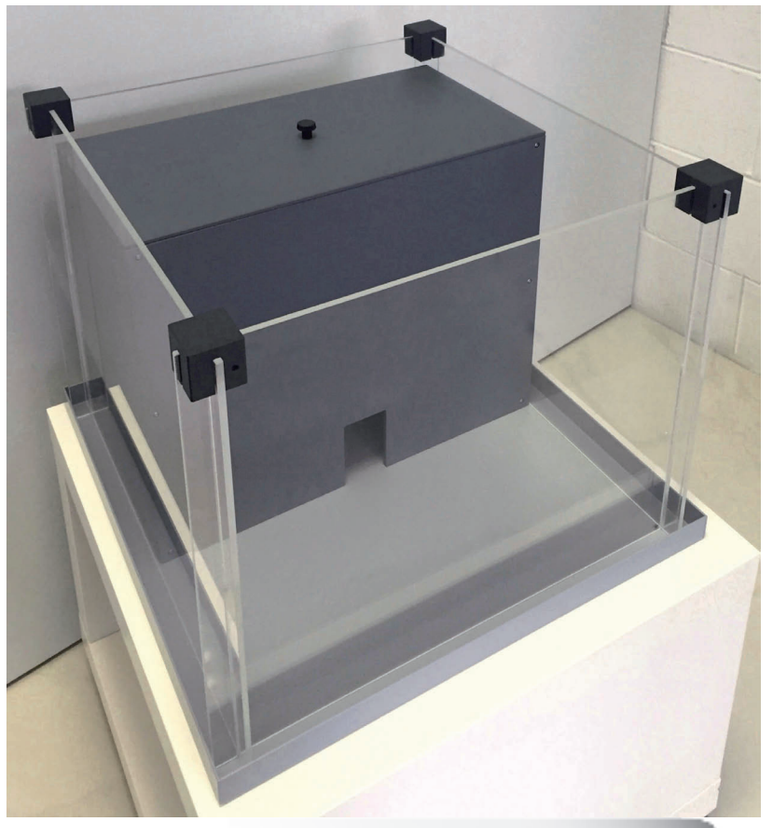
Light/Dark Box
(Light/Dark Conflict Test)

Cat. No. 47442/47443



General

The light/dark transition test was originally developed by Crawley and colleagues (Crawley and Goodwin, 1980) and subsequently validated by Costall et al (1989).

It is one of the most widely used tests to measure anxiety-like behavior in mice. The test is based on the innate aversion of rodents to brightly illuminated areas and on their spontaneous exploratory behavior in response to mild stressors, that is, novel environment and light.

Time spent in the lit compartment, and the related exploratory behavior, are reliable parameters for assessing anxiolytic effects that may be useful in identifying and/or screening of anxiolytic and anxiogenic agents.

Our Light/Dark cage allows to carry out the Light/Dark Conflict Test conveniently, recording the time spend in the bright camera and the related exploratory behavior via a video-tracking system.

FOR STUDIES ON

- Anxiolytic Agents
- Anxiogenic Agents

Main Features

- Designed to work with the all video-tracking software
- A model with opaque external walls (white or grey) is available as optional
- External cage can be used as open field
- The grey floor gives high contrast with both light and dark animals
- The special painting gives a slightly rough walking surface, pleasant for the animals

Ugo Basile: more than 10,000 citations

Rationale and Outline of the Procedure

The Light/Dark test is a characteristic tool used in the assessment of anxiety: the apparatus consists of a simple chamber divided into a dark and a light compartment. Rodents prefer darker areas over light areas: however when presented in a novel environment, rodents have a tendency to explore.

These two conflicting emotions lead to observable anxiety-like symptoms.

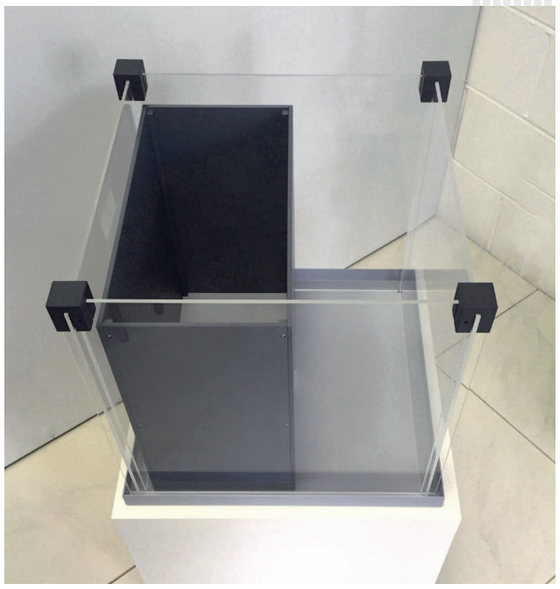
Mice are allowed to move freely between the two chambers. The number of entries into the bright chamber, the duration of time spent there and the related exploratory behaviors, detected via a videotracking system, are reliable parameters for assessing anxiolytic effects that may be useful in identifying and/or screening of anxiolytic and anxiogenic agents.

Transitions have been reported to be an index of activity-exploration because of habituation over time, and the time spent in each compartment to be a reflection of aversion. Classic anxiolytics as well as the newer anxiolytic-like compounds can be detected using this paradigm. It has the advantages of being quick and easy to use, without requiring the prior training of animals.

The light chamber has no ceiling and the walls are transparent, allowing for the simultaneous detection of bright-space anxiety as well as open-space anxiety in the original version of the test.

Cage Description

The cage is available for Mice or Rats.



The Mouse Cage is made of a Start Box (dark chamber) I.D. 42x20x35(h)cm and a Test Box (light chamber) with the same dimensions.

The Rat Cage is similar, with I.D. 48x48x40(h)cm.

Walls fit solidly onto the drop pan which represents the bottom of the cage, but lift off easily for cleaning.

The special painting of the bottom pan gives a slightly rough walking surface, pleasant for the animals, and easy to clean.

Standard model has transparent walls on the light compartment, but an optional model with opaque white walls is also available. Light is not included.

The lid in the dark compartment can be removed, see picture. The external cage, can be conveniently used as an open field.

Optimized for Video-Tracking

The grey floor gives best contrast to both light and dark animals, which is the most critical factor for **all video-tracking softwares** to work properly.

Ordering Information

47432 **Light/Dark Box for Rats**
47433 **Light/Dark Box for Mice**

Physical	Mouse	Rat
Dimensions	44x44cm	50x10cm
Wall height	35cm	40cm
Dark Box I.D.	42x20x35(h)cm	48x48x40(h)cm
Light Box I.D.	42x20x35(h)cm	48x48x40(h)cm
Weight	10Kg	26Kg
Shipping Weight	14Kg	32Kg
Packing	55x55x27cm	105x105x20cm

Color

Transparent or (optional) opaque (white or grey) external cage.

Bibliography

Method Papers

- J. Crawley and F. K. Goodwin: "**Preliminary Report of a Simple Animal Behavior Model for the Anxiolytic Effects of Benzodiazepines**" Pharmacology Biochemistry and Behavior 13(2): 167-170, **1980**
- B. Costall et alia: "**The Effects of ACE Inhibitors Captopril and SQ29, 852 in Rodent Tests of Cognition**" Pharmacology Biochemistry and Behavior 33(3): 573-579, **1989**
- M. Bourin and M. Hascoët: "**The Mouse Light/Dark Box Test**" J Vis Exp. 463(1): 55-65, **2003**
- K. Takao and T. Miyakawa: "**Light/dark Transition Test for Mice**" JoVE 1: e104-e104, **2006**

Animal Mazes
for Video-Tracking

FOR STUDIES OF:

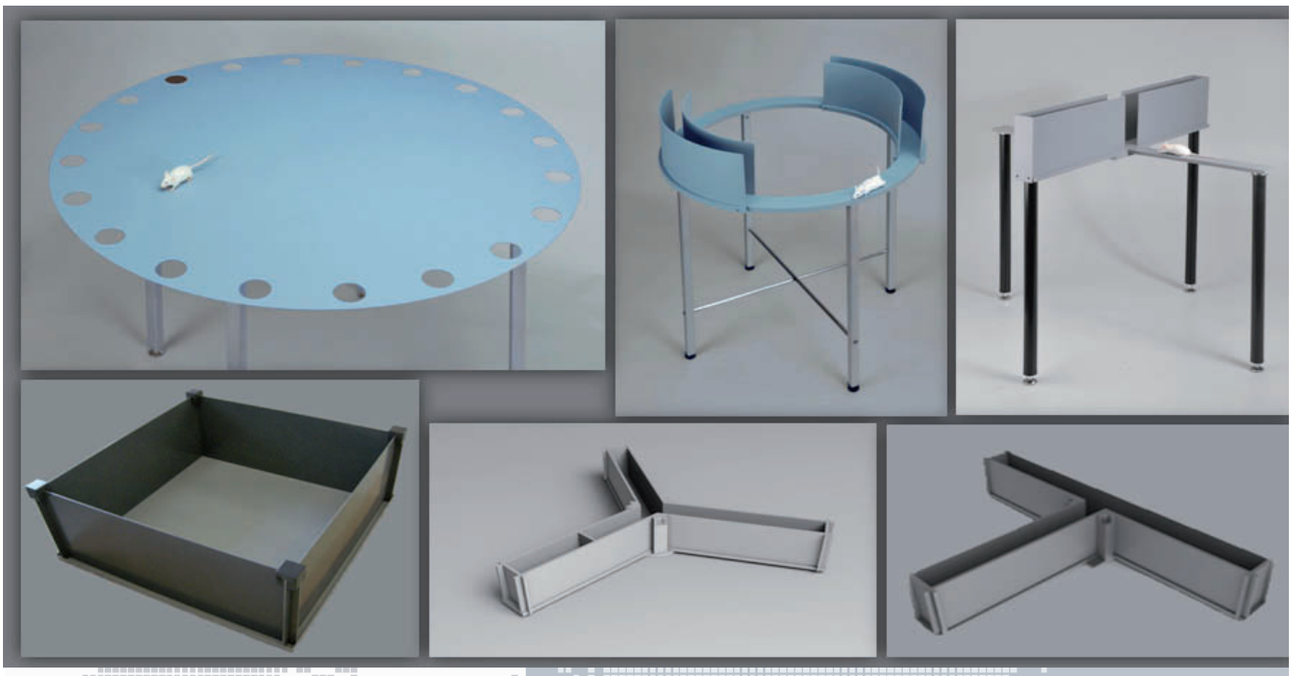
- Anxiety and Stress
- Memory and Learning
- Spatial Memory
- Activity and Exploration

General

The Animal Mazes manufactured by Ugo Basile are designed to give optimal results with any Video-Tracking software. This is achieved by:

- ***high-contrast colors***: grey, white, black or the NEW Ugo Basile Light-Blue
- ***non-reflective surface***: reflections are a common source of error in animal tracking. Let's avoid them!

All maze materials were selected to be *sturdy and easy to clean*, to construct reliable and durable mazes.



Main Features

- High-contrast, non-reflective colors optimized for Video-Tracking
- Quality materials: light, easy to clean and to store
- Surface texture selected for best rodent's comfort (reasonable rough, "warm" surface)

Water Maze Pool

The Ugo Basile Water Mazes are water pools specifically manufactured for Morris Water Maze experiments and include:

- wheels & drain hose
- built-in connectors for Hydraulic Atlantis Platforms (not included)
- customizable colors and dimension on request

Pools are 60 cm high and 120, 150 or 180 cm diameter.

Animal platform not included: please select between fixed, or Atlantis model (see 40100 datasheet) and order separately.

Barnes Maze

- Mouse version: 100 cm diameter, 5 cm hole diameter
- Rat version: 130 cm diameter, 10 cm hole diameter

Both versions are 60 cm high and are painted in non-reflective grey or light-blue (white, black or other custom colors are available on request). The animal shelter is included and is magnetically attached to the maze, for quick and easy experiments.

aze a

Elevated Plus-Maze

Zero - Maze

These mazes are manufactured from high-tech metal alloy and can be painted in different colors. Dimension (cm):

- Elevated Plus-Maze, Mouse: arm lenght 35, arm width 5, closed wall height 15, height from the floor 60
- Elevated Plus-Maze, Rat: arm lenght 50, arm width 10, closed wall height 40, height from the floor 60
- Zero-Maze, Mouse: diameter 55, corridor width 5, wall height 15, height from the floor 60 cm

Y-maze, T-maze

These mazes have a metal base painted in non-reflective grey (more colors on request) and plastic arms that can be disassembled and closed with the included doors. Dimension (cm):

Y-maze, Mouse: arms length 35, width 5, wall height 10
Y-maze, Rat: arms length 50, width 10, wall height 20

T-maze, Mouse: stem lenght 35, arm lenght 30, width 5, wall height 10
T-maze, Rat: stem lenght 50, arm lenght 40, width 10, wall height 20

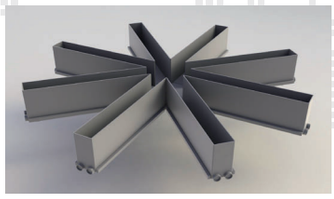
Open-Field

Open Fields are avaiable in non-reflective grey color, for mice (44 cm) or for rats (100 cm); both versions have detachable walls for ease of storage.

Mouse Radial Maze

The new Mouse Radial Maze is manufactured from high-tech metal alloy and durable plastics to be as sturdy as possible.

Different colors are available, all non-reflective, and arms can be detached, for easy cleaning.
Dimension (cm):



arms length 35, width 5, wall height 10

Ordering Information

40125	**Water Maze, 120 cm, for mice**
40155	**Water Maze, 150 cm, for mice and rats**
40185	**Water Maze, 180 cm, for rats**
40193	**Barnes Maze, for mice**
40192	**Barnes Maze, for rats**
40142	**Elevated Plus-Maze, for rats**
40143	**Elevated Plus-Maze, for mice**
40163	**Elevated Zero-Maze, for mice**
40173	**Y-maze, for mice**
40172	**Y-maze, for rats**
40133	**T-maze, for mice**
40132	**T-maze, for rats**
47432	**Open-field, 44 cm, dark walls**
47433	**Open-field, 44 cm, transparent walls**
47100	**Open-field, 100 cm, dark walls**
47150	**Open-field, 100 cm, with 4 partitions**

www.ugobasile.com

MULTI-MAZE SYSTEM

Cat. No. 41500

Spatial memory is the ability to create a mental geographical map of the surroundings and to navigate the environment accordingly (Ref). In humans, for example, spatial memory allows one to easily find the way to the right office in a large building.

While the definitions of working and reference memory may be subtle and can be debated among scholars, briefly, working memory is the ability to keep track of which offices we have already visited while looking for someone, while reference memory allows us to remember which of the many rooms is Mary's office.

In rodent studies, spatial memory can be tested by placing animals in mazes composed of 3 or more radially arranged walkways (arms) and observing either spontaneous exploratory behavior or reward-based navigation.

The new **MULTI-MAZE** Cat. No. **41500**, for mouse or rat, will help the researcher to conduct fully automated memory experiments such as:

- Assessing **spatial memory**
- Testing basic **working memory**
- Discriminating working from reference memory
- Evaluating impairments in the working memory

The electronic unit features USB interface, 8 independent TTL inputs and integration with videotracking software.

The proprietary sliding doors retract in the maze floor, ensuring unobstructed animal tracking, while guaranteeing smooth, silent, totally automated up/down movements.

All the animal mazes manufactured by Ugo Basile, feature high-contrast colors and non-reflective coatings, providing optimal results with any videotracking software.

Surface texture was selected for best rodent's comfort.

Our mazes are constructed of sturdy, easy to clean materials, making them the most reliable mazes on the market.

VERSATILE MULTI-MAZE FULLY CONFIGURABLE AS:

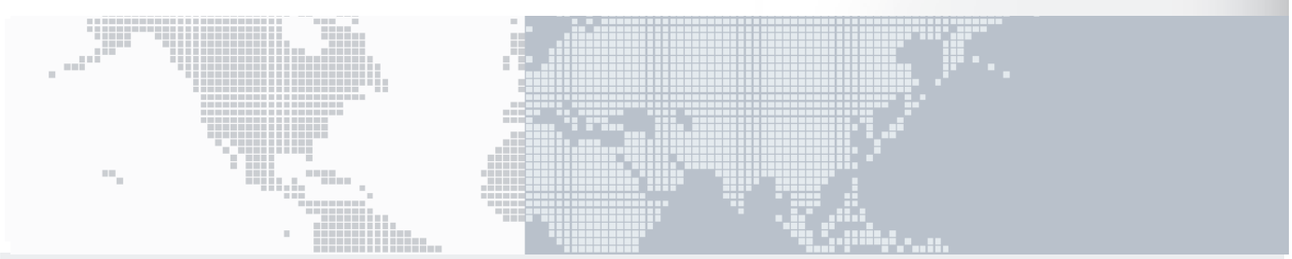
- **Y-Maze**
- **T-Maze**
- **8-Arm Radial Maze**

Optimized for Video-Tracking

Ideal for Optogenetics tests

Easily customizable

AVAILABLE FOR MOUSE OR RAT



Main Features

- New proprietary modular system
- Doors slide underneath the floor
- Smooth and silent operation
- Easily cleanable
- Manual or PC-driven operation modes (via TTL or USB connection)
- Interchangeable walls for egocentric or allocentric spatial memory tests (low profile walls are optional)
- Different colors or textures available on request
- Different arm length available on request

Ugo Basile: more than 10,000 citations

System Description

The new **MULTI-MAZE 41500** is a modular system, enabling the user to set-up an electronically controlled maze, by combining one of the different arenas provided, and the required number of arms, in one of the following configurations:

- **Mouse Y-Maze**
- **Mouse T-Maze**
- **Mouse 8-Arm Radial Maze**

This feature is facilitated by the new door-controlling kinematics; the motor for each section is actually an integral part of the arm itself, positioned below the door area, while a control unit, positioned below the central arena, consolidates the motor control board, the interface with the external electronic unit, and the interface with the video-tracking software (ANY-maze, not included).

The corridor side walls, made of plastic material, are easily removable, for cleaning purposes. Moreover, it will be easy to switch from high profile to low profile wall (optional), according to the research needs.

Arm dimensions:

	Mouse	Rat
Length	35cm (**)	60cm (**)
Width	5cm	10cm
Height	12cm	30cm

An automated door is provided on each arm, at the central arena end.

System Configurations

Y-Maze Configurations

	41503 Mouse	41513 Rat	
1	**41500-001**	**41500-011**	Central Control Arena
3	**41500-002**	**41500-012**	Arm with automated door
1	**41153-010**	**41153-010**	Electronic Unit (8 TTL outputs)

T-Maze Configurations

	41504 Mouse	41514 Rat	
1	**41500-001**	**41500-011**	Central Control Arena
3	**41500-002**	**41500-012**	Arm with automated door
1	**41153-010**	**41153-010**	Electronic Unit (8 TTL outputs)
1	**41500-003**	**41500-013**	"Start" compartment

An automated door is provided on each arm, at the central arena end; the "start" compartment with automated door, attached to the end of the stem-arm, completes the T-Maze.

The 41504 /41514 configurations also enable the Y-maze test to be carried out, without any extra accessories.

8-Arm Radial Maze (see front picture)

	41508 Mouse	41518 Rat	
1	**41500-001**	**41500-011**	Central Control Arena
8	**41500-002**	**41500-012**	Arm with automated door
1	**41153-010**	**41153-010**	Electronic Unit (8 TTL outputs)

The 41508/41518 configurations also enable the Y-maze test to be carried out without any extra accessories, and the T-maze with the addition of the Start compartment only.

Ordering Information

Components

Mouse	Rat	
41500-001	**41500-011**	**Central Control Arena,** incorporating motor drive & interface to external unit
41500-002	**41500-012**	**Standard Arm**, provided with automated door, and high profile walls*
41500-003	**41500-013**	**"Start" Compartment** for T-maze, with automated door & high profile walls*
41153-010	**41153-010**	**Electronic Unit** (8 TTL outputs)

Configurations

41503 41513	**3-Arm configuration,** for Y-maze test, high profile walls, automated doors, Y & T arenas
41504 41514	**3-Arm configuration**, and "Start" Compartment, for T-maze test, high profile walls, automated doors, Y & T arenas
41508 41518	**8-Arm configuration**, for Radial-Maze, high profile walls, automated doors; 8-arm, Y & T arenas

Custom accessories/configurations are available on request:

- low profile walls (*) for allocentric memory
- longer arms (**)
- custom made set-ups

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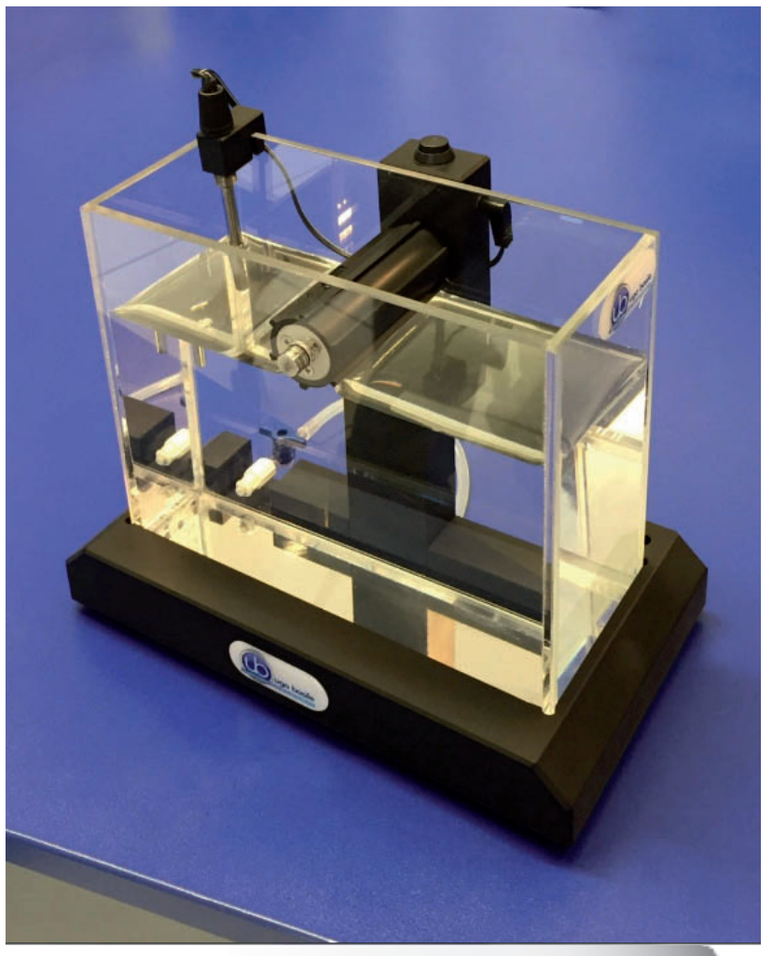
Forced Swim Test
with Water Wheel

Cat. No. 40803



General

The **NEW Forced Swim Test with Water Wheel** automatically scores active escapes and eliminates the subjectivity of immobility measurements. Automatically scored wheel rotations directly correspond to active escape attempts.

In 1977, Porsolt introduced the Forced Swim Test (FST), a behavioral test used for screening antidepressants (see bibliography).

Rodents are placed in an acrylic cylinder filled with water, from which they cannot escape. The animal's natural response is to attempt escape, measured by active swimming. After several unsuccessful attempts, the rodent learns that it cannot escape and becomes immobile. Increased immobility time is associated with behavioral despair and other depression-like behaviors.

Although the Porsolt Forced Swim Test remains one of the most widely used behavioral test for screening antidepressants, significant criticisms of the Porsolt FST interpretation have been made, in particular, maintaining that the method lacks objectivity in evaluating immobility (due to experimenter's subjectivity) and does not successfully screen 'false positive' drugs.

FOR MICE

FOR STUDIES ON

- Depression
- Antidepressants
- Mood
- Behavioral Despair

Main Features

- Compact and user friendly
- Automate up to 40 tests, simultaneously
- Eliminates subjectivity of immobility measurement
- Connects to ANY-maze for automated scoring and completed data analysis
- Continuous water temperature feedback

Ugo Basile: more than 10,000 citations

Rationale and Outline of the Procedure

"*A depressed state can be induced in mice by forcing them to swim in a narrow cylinder from which they cannot escape. After a brief period of vigorous activity the mice adopt a characteristic immobile posture which is readily identifiable" (Porsolt et al.).*

In other words, mice forced to swim in a restricted space rapidly cease moving and become lethargic. Porsolt et al. named this phenomenon '**behavioral despair**', and demonstrated that antidepressants selectively reduced the immobility.

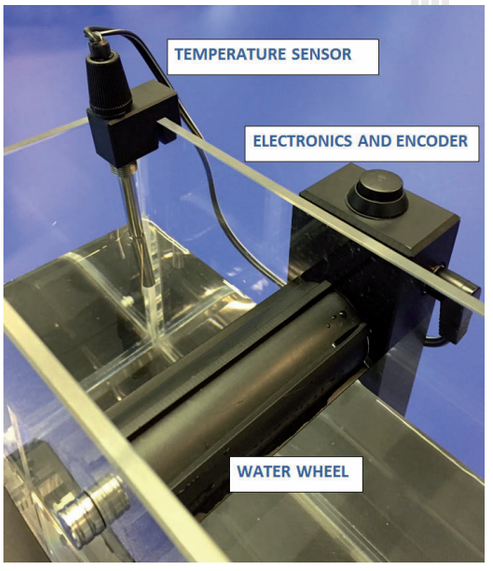
The modification suggested by S. Nomura et alia in their paper of 1982 involves a **small water wheel set in a water tank, to provide an objective measurement (number of rotations)** and overcome the bias intrinsic to Porsolt's method.

In the habituation phase, the rodent is left for 5 minutes to explore the tank, and will identify the wheel as a possible escape way. The wheel rotates freely. During the test proper: mice turn the wheel vigorously and when they give up attempts to escape from the water, the wheel stops revolving and the number of rotations are recorded.

"*... this water wheel test is more appropriate as screening test for antidepressants than Porsolt's test with regard to both objectivity and specificity." (Nomura et al.)*

Instrument Description

The apparatus consists of a transparent water tank dimensioned 20(w)x8(d)x18(h)cm. A water wheel is positioned in the center of the tank.



The water wheel has a diam. of 3.5cm and is 8cm wide; six 0.5cm paddles are evenly positioned on the wheel surface.

The tank should be filled with water at 25°C, with the wheel just resting on the water surface. A temperature sensor, which can be placed on either side of the tank, provides a feedback on the actual temperature.

The number of rotations (Clockwise and Counter Clockwise) are scored by a precision rotation encoder.

A drain is provided on the bottom of the back wall, to adjust water levels and empty the tank without moving the device. The tank can be easily disassembled and conveniently cleaned.

Data Recording and Analysis

The FST device connects to the PC via a USB cable provided as standard. Several 40803s can be connected to the same PC via a USB hub.

A **Forced Swim specific mode of ANY-maze (60000-FST**), also included in the full license, collects the information from the electronics (encoder & temperature sensor), automatically scores number of rotations and performs statistical analysis.

Ordering Information

40803	**Forced Swim Test,** complete. Including with rotation encoder & temperature sensor
60000-FST	**ANYmaze Module for FST**

Specifications

Power Supply :	USB (connection to PC)
Scoring :	via rotation encoder
Data collection & analysis :	via ANYmaze FST module

Physical

Dimensions	24(w)x12(d)x21(h)cm
Weight	2.4Kg
Shipping Weight	3.5Kg
Packing	29x26x29cm

Bibliography

Method Papers

- S. Nomura et alia: "**A New Behavioral Test for AntiDepressant Drugs"** Eur. J. Pharmacol. 83, 171-175, ***1982***
- R.D. Porsolt et alia: "**Behavioral Despair in Mice: A Primary Screening Test for Antidepressants"** Arch. Intl. Pharmacodyn. 229(2), 327-336, ***1977***
- R.G. Browne: "**Effects of Antidepressants and Anticholinergics in a Mouse "Behavioral Despair" Test**" Eur. J. Pharmacol. 58(3): 331–334, ***1979***

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