Fear Conditioning System
Memory in Rodents
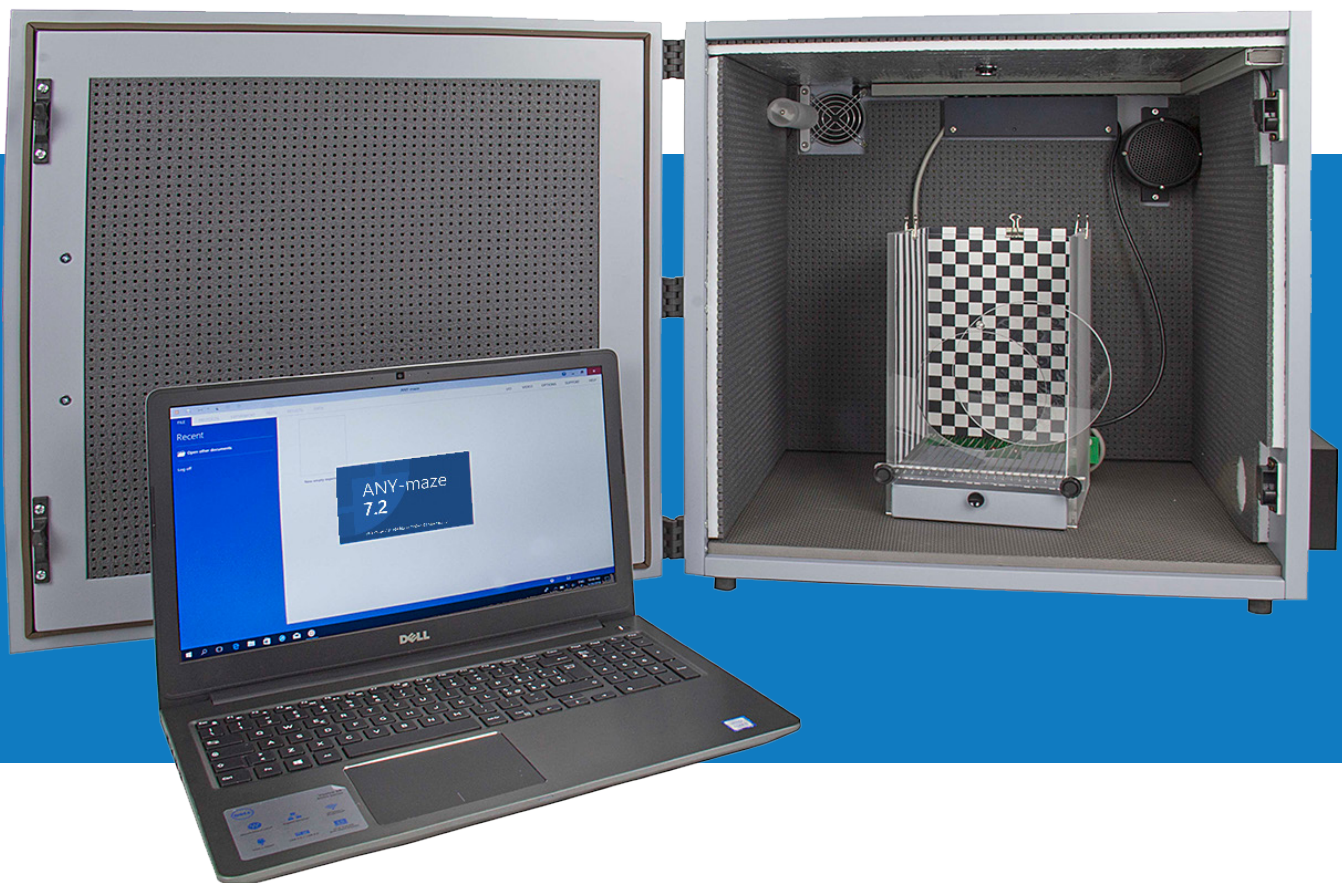
Fear Conditioning System
Fast set up. Simple control. Easy expansion

Fear conditioning is one of the most common methods to measure memory in rodents. It is simple to install and it can be frequently used as a single trial, fast and high-throughput experiment.

Background

Freezing

- Fear conditioning is one of the **most common methods to measure memory in rodents**.
- It exploits the Pavlovian association between an unpleasant unconditioned stimulus (shock) to a conditioned neutral stimulus (sound cue or context).

- The reaction of rodents is to **freeze when exposed to fearful situations**, such as a shock.
- The ratio between the freezing with and without shock gives a measure of the memorization of the event and hence allows for a fast memory screening.

Typical device applications

Once the association has happened and the animal has memorized it, freezing will happen also when the sound is presented without shock or when the animal experiences the context where the shock was delivered.

This is the basic principle of Fear Conditioned, which is normally referred to as Cued and Contextual to describe change in the cage interior (context, or appearance).

This step of the experiment ensures that the detected freezing is actually the reaction to the sound and not to the memory of the environment. In the same way, the memorization of the context as the unconditioned stimulus (with no sound used), can be measured by comparing the freezing with shock (training), or in the same context without shock.

Product Description

The Ugo Basile Fear Conditioning system is composed of isolation cubicle including all electronics, fan, visible and IR lights, high intensity speaker for frequency and white noise sounds, IR camera, cables and lenses (up to 16 cubicles can be connected to 1 PC).

The system must be completed by choosing:

- Animal cage (one for every cubicle) available in different dimensions for rats and mice, plus the observational learning version to allow two animals to see each other. The standard cage has a circular opening, but also a vertical door is available.
- Video-tracking system is required. Only 1 license, no matter how many cages you have.
- Optional Electric Shock Meter for Fear Conditioning system (essential instrument to measure current among cages).
- Optional UB Care 12 or UB Care 24 additional warranty extension.
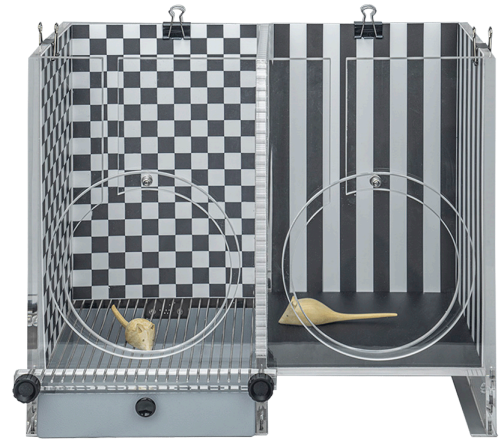
Animal cages are available in different dimensions for rats and mice, plus the observational learning version to allow two animals to see each other. Each cage includes interchangeable contexts, easy to mount on the walls with different patterns, and floor.

Features	**B**enefits
One USB cable connection	Seamless installation and connection to PC
High throughput	Expandable from 1 to 16 units for high throughput
Miniaturized USB-IR camera with 2 lenses (normal and fish-eye)	Camera mounted on the ceiling and working in any light conditioning and with any cage dimension
Control via ANY-maze or any other software	Super easy to control and fully automated via to perform effortless experiments. Automated Freezing detection and controls for the most accurate results
Interchangeable contexts	Easy to mount on the walls with different patterns
IR and visible illumination	Experiments can be run in light or darkness, also as a tool to alter the context
Same software controls devices and analyses freezing	Fast learning curve in building protocols and automatic detection of freezing
Cages for tethered animals	Compatible with optogenetic and electro physiology
Multiple cage dimensions	Most suitable dimension for rats or mice

Main references

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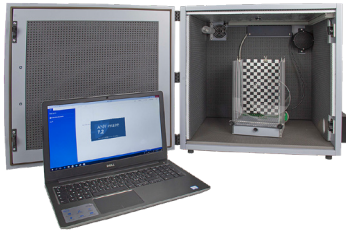
The Ugo Basile Fear Conditioning system is composed of:

- Isolation cubicle (up to 16 set-up)
- Animal cage (one for every cubicle)
- Video Tracking software (one for every system, eg. if you choose a 4 cubicle/animal set-up you need just one software license)
- Optional Electric Shock Meter
- Optional UB Care warranty extension

Specifications - Operation

Camera	IR sensitive (lens 2.1mm and 4mm), visible light filtered
Active Silent Ventilation	With double chamber
Read-Out	USB to PC through ANY-maze, TTL I/O

Specifications - General

Shock Intensity	From 0.1 to 3mA, in 0.1mA steps
Shock Duration	Duration: from 0.5 to 60 seconds
Illumination	Dimmable visible light and IR light at 850nm
Sound	500Hz-18KHz, adjustable volume, max 100dB ± 3dB
White Noise	Adjustable volume, max 77dB ± 3dB
Power	100-240 VAC, 50/60 Hz, 60W max
Operating Temperature	10°C to 40°C; 5% to 95% RH (non-condensing)

Physical

Cubicle dimensions	Outer dimension: 52(d)x62(w)x58(h)cm	Internal 39(d)x47(w)x49(h)cm

Ordering informations

46001	Fear Conditioning 1 animal system
46001-2	Fear Conditioning 2 animal system
46001-3	Fear Conditioning 3 animal system
46001-4	Fear Conditioning 4 animal system
46002-D03	Rat Cage for Fear Conditioning for tethered animal
46004-D03	Mouse Cage XL for Fear Conditioning, for tethered animal
46004-D01	Fear Conditioning Cage with frontal vertical door
46005	Fear Conditioning Cage for Observational Learning
60000-FC	ANY-maze software, FC-specific version
60000	ANY-maze software full license (TGR and all other ANY-maze test included in the full version)

Optional items

46000-101	Electric shock meter for Fear Conditioning system (essential instrument to measure current between cages)

Extra warranty (standard 12 months + 12 months with product registration)

46001-UBC12	UB Care 12 Additional hardware warranty extension 12 months for Fear Conditioning 1 animal system
46001-2-UBC12	UB Care 12 Additional hardware warranty extension 12 months for Fear Conditioning 2 animal system
46001-3-UBC12	UB Care 12 Additional hardware warranty extension 12 months for Fear Conditioning 3 animal system
46001-4-UBC12	UB Care 12 Additional hardware warranty extension 12 months for Fear Conditioning 4 animal system
46001-UBC24	UB Care 24 Additional hardware warranty extension 24 months for Fear Conditioning 1 animal system
46001-2-UBC24	UB Care 24 Additional hardware warranty extension 24 months for Fear Conditioning 2 animal system
46001-3-UBC24	UB Care 24 Additional hardware warranty extension 24 months for Fear Conditioning 3 animal system
46001-4-UBC24	UB Care 24 Additional hardware warranty extension 24 months for Fear Conditioning 4 animal system

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