

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 reflexory 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.

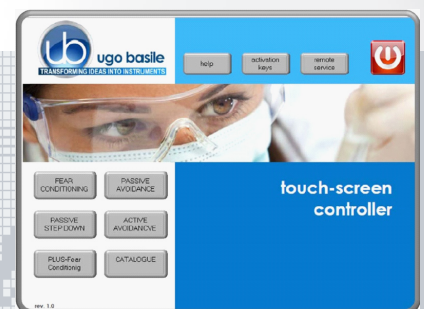
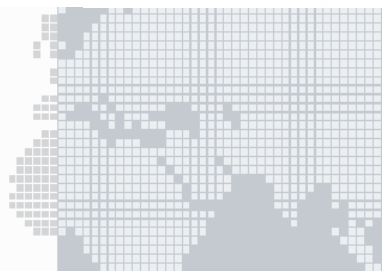
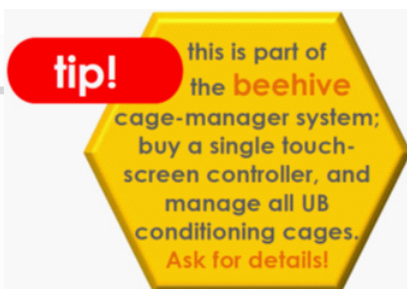
Deficits of prepulse inhibition, manifesting in the inability to filter out the unnecessary information, have been linked to abnormalities of sensorimotor gating, noted in patients suffering from illnesses like **Schizophrenia** and **Alzheimer's Disease**, or under the influence of drugs, surgical manipulations, 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**



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!

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

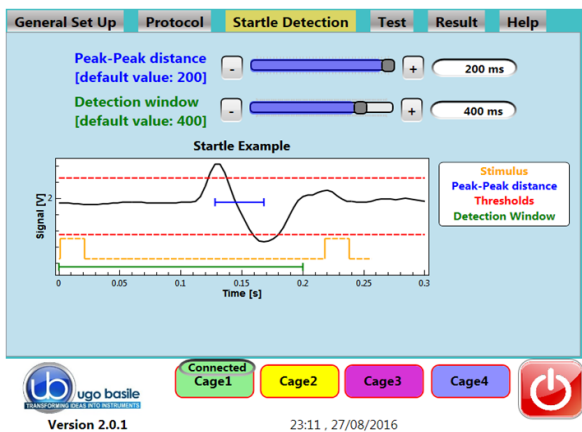
Controller **40500-001**, with the aid of the application software **48000-010**, consolidates all controls in a single compact unit and records data from up to 4 S/R Platforms. On its 12" touch-screen, the operator sets following parameters via the user-friendly interface:

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.

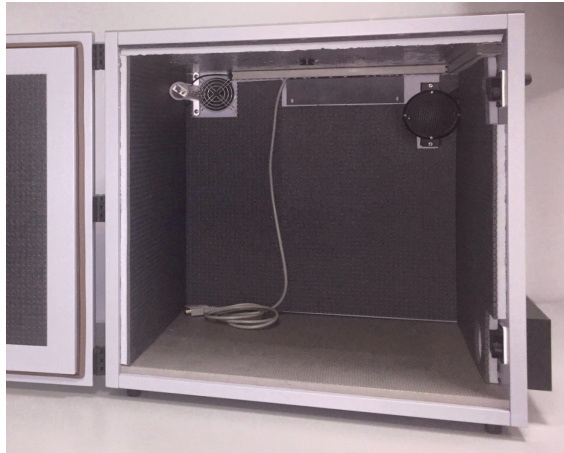
Mouse Box

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

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- 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