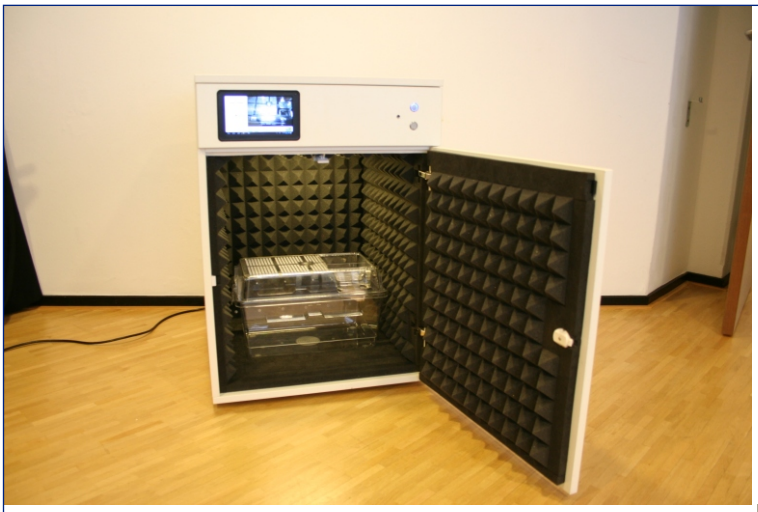
SMARTCHAMBER™

Sound attenuation, echo cancellation & environmental control



SmartChamber provides an advanced sound isolated, ventilated and light controlled environment to perform high performance ultrasonic vocalization experiments.
The interior of the chamber effectively removes sound echo's, external sounds and magnetic interference and is therefore very suited for various types of preclinical experiments requiring full control of the measuring environment.

The SmartChamber concept

In contrast to other Sound Attenuation boxes, SmartChamber is completely controlled by an Android Tablet and is equipped with an dedicated interior and variety of sensors to create an undisturbed, user controlled and user monitored measuring environment.

Smartchamber will not only improve experiments involving recording of Ultrasonic Vocalizations, but can be instrumental in various other preclinical tests too. By effectively eliminating unwanted environmental stimuli and crosstalk between measurement cages the quality of the experimental results can be significantly improved.

SmartChamber is equipped with the following sensors and controls:

Controls:
- Video-pan/tilt
- Ventilation
- Light-white
- Light-red (optional)
- Ultrasound generator (optional)

Sensors:
- Laboratory room light sensor
- Door lock sensor
- Video camera - daylight/infrared
- Ultrasound Microphone (optional)
- Temperature (optional)
- Humidity (optional)
- Barometric pressure (optional)

SmartChamber can be seamlessly integrated with Sonotrack.

About Metris

Metris is a solution provider for automated animal behavior analysis. We offer both off the shelf and tailor made solutions for non-invasive measurement of animal behavior. All solutions provided contribute to a further Refinement, Reduction and Replacement of laboratory animal research. Metris actively works together with trend setting research institutes and companies and has several strategic alliances with other market leaders in the field of animal behavior research.

In addition to SmartChamber, Metris also offers the award winning LABORAS (for automated continuous behavior recognition and tracking of small rodents) and SONOTRACK (for recording, analysis and playback of ultrasonic vocalizations)..

Construction

The SmartChamber consists of two parts, the measurement cabin and the control segment:
The measurement cabin is sound proof and minimizes echo's using an pyramid foam interior. The cabin offers space for various types of standard rodent cages as well as special cages which are more suited for sound measurement
The control segment of the SmartChamber includes all electronics and the tablet. The ventilator is also mounted in the control segment and air is fed through small openings to the measurement cabin to minimize unwanted sounds.

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Unique Features of the SmartChamber

Multi purpose test environment:
The SmartChamber was originally designed for high quality recording of Ultrasonic Vocalizations, but can be used for a variety of preclinical experiments. This includes tests in which cross talk between cages and unwanted environmental influence needs to be minimized.

Designed for Ultrasound use:
In contrast to other sound attenuation chambers, the SmartChamber blocks both normal sounds as well as ultra-sounds and is designed to minimize ultrasound echo's. The extra height enables the proper placement of the ultrasound microphone, which usually has a limited opening angle.
The SmartChamber can be delivered with an optional build-in Sonotrack Microphone.

Tablet controlled:
An Android tablet is used to control the SmartChamber (light, ventilation, door, etc.) and to display sensor data and video of the animal under test. Because of this operator sounds and door opening are minimized.

Elimination of ventilator sounds:
Ventilators can be source of ultrasounds. Use of an ultra-low noise ventilator (less than 6 dB) which is not in the measurement cabin of the SmartChamber completely eliminates ventilator sounds in Ultrasound Vocalization recordings.

Door sensor and latch:
A door sensor checks if the door is closed or open and can automatically control the ventilator and the light in the SmartChamber preventing a lack of oxygen in the test chamber. The door knob can be pushed in and has an integrated lock to prevent accidental opening of the door.

Synchronization with Light-Dark cycle of room:
The Light-Dark cycle inside the SmartChamber can easily be synchronized with the Ligh-Dark cycle of the laboratory room. This is achieved by a sensor in the front of the SmartChamber which detects the light condition in the room. The operator can select this mode or enter another light-dark cycle.
The default light in the SmartChamber is provided by a white light LED bar.

Video camera:
Video of the built-in camera is shown on the tablet and is also available through other wifi enabled devices such as phones, other tablets or PC's. An infrared light enables visibility when the chamber light is off. The camera can be controlled from the tablet and can be pointed to the animal.

Magnetic shielding:
The SmartChamber is magnetically shielded on the top to reduce the effect of magnetic fields on the ultrasound microphone.

Optional sensors:
The SmartChamber can be delivered with a variety of optional sensors. The optional sensors (room temperature, room humidity, barometric pressure, etc.) can be logged together with other test data. This additional data can for example be used to investigate the effect of environmental variables on your test data. Specific sensors might be added on request.

Ordering information

SmartChamber can be delivered in several configurations. Depending on your research requirements and available space you can choose between various controls and sensors, SmartChambers that can be stacked and doors that open on the left or right side.
More information can be obtained through our website or by contacting Metris B.V. or one of our qualified distributors.

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