Response Box

This compact and modular **trigger box solution** allows for the precise synchronization in real-time, i.e. down to a few microseconds, of different inputs in order to accurately measure reaction times and thus collect precise experimental data. The basic unit links a video trigger detector for on-screen visual stimulus presentation to a push button keypad to acquire your subject's physical feedback. Through the built-in I/O channels, the unit can however be linked to additional external trigger sources including our ***Sniff-0*** olfactometer and ***Spir-0*** breathing cycle monitor, as well as receive or provide triggers to any TTL compatible device (e.g. EEG or TMS).

The trigger system can handle different types of pads:
- *one, two or four on/off buttons (digital)*
- *one or two force pad buttons (analog measurement of pressing force)*
- *MRI compatible options*

System programming and management of the ***Response Box*** is extremely simple as it is based on an Arduino processor. By combining our high-end customized electronics for trigger and signal management with an Arduino processor this device offers the ideal combination of high performance with ease of programming.

The ***Response Box*** can be perfectly integrated with ***Sniff-0***, ***Spir-0, Audio Box*** and ***ViStiSync*** to synchronize visual, olfactory, tactile and audible stimuli, with the subject's respiratory activity and tactile responses, giving you access to the full breadth of sensory stimuli and responses for your experiments.

Main features

True real-time system: the ***ViStiSync*** digital eye captures the screen variations and synchs it with the pad interactions

USB 2.0

USB interface to power the device and communicate to the host PC through an emulated serial port supported by all operating systems

Compatible with the most diffused application frameworks such as MatLab®, Octave, E-Prime®, LabView®, PsychoPy

TTL SYNC

Custom build electronics module minimises noise and delays to allow a precise synchronization from/to external TTL compatible devices

POWERED

Open programmable Arduino based architecture, allowing you configure and personalize all aspects: the standard firmware means you will be able to program the unit yourself, or choose to have us build a specific customized solution for your research needs

Multiple response pad configurations available and customizable to specific research needs (available upon request)

3D

Elegant and robust though unobtrusive ergonomic design with 3D printed parts

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Trigger Box SPECIFICATIONS	
OS support	*Windows®, MAC®, GNU/Linux using Arduino Due drivers*
Software compatibility	*Python, MatLab®, Octave, C, C++, E-Prime®, LabView®, PsychoPy*
Communication	*USB 2.0 (USB 3.0 supported)*
Video triggering	*Up to 200Hz*
I/O	*1 BNC TTL compatible Output (0-5 V)* *1 BNC TTL compatible Input (0-5V, 10V tolerant)*
Trigger inputs	*1 analog input for audio/video SYNC*
Extension ports	*USB 2.0 host (mouse, keyboard, key pad capable)*
Power	*Self-powered by 5V USB connection (< 5W)*
Compliance	*CE EN 61000-6-3:2007*
Dimensions	*200 x 100 x 70mm*
Weight	*470g*

KeyPads SPECIFICATIONS	
Trigger mechanism	*Totally customizable as force pad or up to 6 coloured/illuminated buttons upon request*
Cable length	*1.2m*
Dimensions	*100 x 50 x 30mm*
Weight	*160g (2 button version)*
Power	*Self-powered trough the Trigger Box connection*

ViStiSync Screen Sensor SPECIFICATIONS	
Shape	*3D printed plastic monitor sensor, adaptable to almost all flat monitor models by a simple and adjustable three points clamp*
Positioning	*Any screen corner*
Screen thickness	*Min: 8mm* *Max: 42mm*
Screen bevel	*Max: 35mm wide*
Cable length	*1.2m*
Dimensions	*140 x 58 x 67mm (MAX)*
Weight	*90g*

RELATED PRODUCTS	
Olfactometer	*Sniff-0*
Breathing monitor	*Spir-0*
Audio extension	*Spir-0 with Audio Box plugin*
Virtual Reality	*Unity-based compatible library*

OPTIONS / ADD-ONS

- Alternative keypads, with different number, layout, colours or types of buttons
- EEG and fMRI compatible keypads (coming soon)
- Additional trigger sensors
- Ruggedized carrying case
- Customized solutions to meet your specific research needs