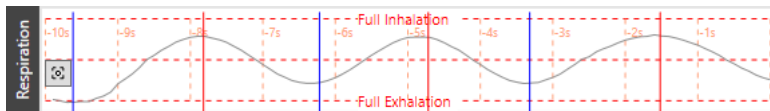


ETT Olfactometer 2^C

Variable rate, fully programmable 12-channel Olfactometer with subject feedback and millisecond data resolution for fMRI and EEG studies of the olfactory system



The ETT Olfactometer 2^C is specifically designed to stimulate the olfactory system during fMRI inside a magnetic field or during electrophysiological experiments. It can precisely synchronize stimuli with respiratory functions. This device features an intuitive, easy-to-use, plug-and-play interface that offers the operator full control over all stages of the experiment. Up to 12 different odorants offer maximal flexibility. This device can also uniquely provide up to 6 different specific odor stimuli independently to each nostril.



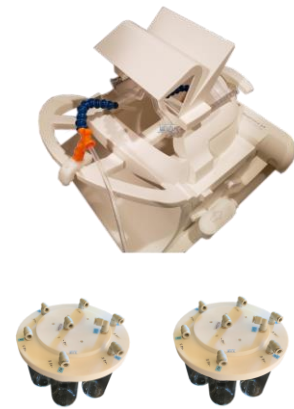
ETT DirectControl Respiratory Trigger

administration of stimuli to multi-device synchronization and controlling even the most complex trigger- and respiration conditions – it can be done. The software includes a fully featured paradigm designer that accurately adjusts device behavior to experimental design needs. It allows the operator to reliably present stimuli. Accurately control timing and other stimulus aspects. Paradigms can be triggered manually or through any standard TTL pulse from an external source. Stimulus onsets can be fully synchronized with inhalation. Visual and auditory stimuli can seamlessly be integrated. All information about each run, including subject feedback, all timing, and self-diagnostics, are stored by the software at the end of the paradigm.

ETT DirectControl easily interfaces with your existing preferred stimulation toolboxes in Matlab, Eprime, Matlab, PsychoPy and many more.

The ETT DirectControl software offers full control over any aspect of the experiment.

From design and

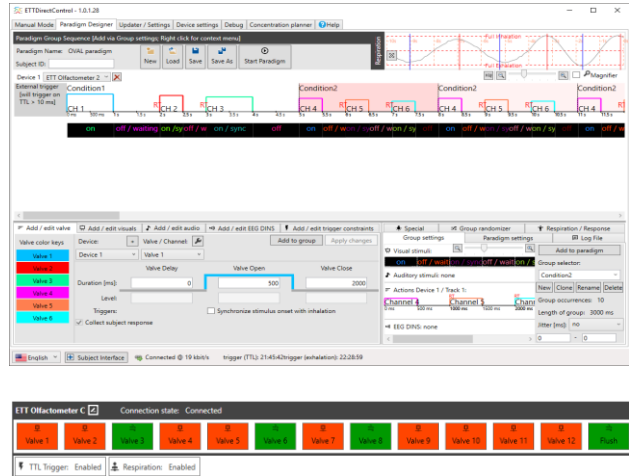


Coil mounted ETT Respiratory Applicator & two Odorant Carrier 2s

Features and Performance

- Stimulate, measure, and record in real-time
- Easy to use & plug and play
- Odorant carrier constructed from exclusively MRI compatible and odor inert materials (PTFE)
- Full flexibility in timing and volume delivery
- Paradigm trigger and stimulus onset delay via external pulse (like MRI RF trigger)
- Paradigm trigger and stimulus onset delay via respiratory inhalation detection (full synchronization of stimulus with respiration, optional visualization, and other optional external modalities)

- Real-time automatic data recording of respiration, paradigm, and trigger events in both graphical and digital formats
- Advanced filtration system for highly purified air
- Variable air flow rate from 1-8L/min
- External pre-mixed gas input to deliver fresh air and/or gas mixtures (Optional upgrade)
- ETT DirectControl software allows for use with an external computer to create the most advanced stimulation sequences
- Manual mode for fast and easy channel testing
- Subject feedback system via ETT DirectControl (presents visual stimuli, auditory stimuli, records keystrokes or external feedback devices)



Specifications

In the box:

- ETT Olfactometer 2^C
- Customized nosepiece/applicator
- Two (2) PTFE tubing set (8 m, all-channels) including all necessary connectors
- Two Six-channel odorant carrier each with six (6) odor containers
- Respiratory sensor belt with digital input
- Optical trigger to electrical MR trigger convertor (optional)
- Coaxial cable with connector (optional)
- Power cord

ETT DirectControl Paradigm Designer and Manual Mode



Ports and Details

Front panel:

- “TRIGGER IN” to commence paradigm on external pulse
- “TRIGGER OUT” to supply a pulse on each stimulation initiation
- ETT DirectControl port for external computer control
- Total air flow adjustment
- Air flow balance adjustment (Ratio between stimulus and flush)

Back Panel:

- Simulant outlets for all channels
- Flush channel outlet
- Air Intake for special air or gas sources (optional)
- AC input



ETT Olfactometer 2^C Front Panel & Back

Configuration

Weights and Measurements

- 27.7 lbs / 12.6 kg (device only)
- 41.3 cm (W) x 36.9 cm (D) x 22.3 cm (H)

Color Options

- Blue front panel with gray aluminum body

Memory and Storage

- Within software

Power

- Input Voltage: 110/230V
- Power requirements: 250W

Sound

- Optional feedback sounds
- Less than 60 dB at 1 meter

Hardware

- Dual axial plunger air pump with 25 psi air pressure
- Micro-filter ventilation system with replaceable charcoal and particle filters
- 14 solenoid valve system (12 stimulus channels, 2 baseline/normal air channels)
- Two 6 chamber MRI compatible Odorant Carrier
- Customizable nosepiece/applicator (Single nostril, nostril specific stimuli)
- 1 channel PTFE tubing set between Odorant Carrier and applicator

Communications

- "TRIGGER IN" with a pulse (+5V, $\geq 1\text{ms}$)
- "TRIGGER OUT" with a pulse (+5V, $\geq 10\text{ms}$)
- Subject response touch pad with digital input
- Subject respiratory monitoring with digital input

- ETT DirectControl application system (Windows)
- Optional EEG trial marker interface

Display

- Interactive control via ETT DirectControl software on Windows PC

Software and support

- ETT DirectControl 1
- Customer download ETT DirectControl application system (Windows)
- Matlab, PsychoPy, PST Eprime, Presentation
- DLL import
- Remote control device over network
- Quick Start manual
- Manual

Training

- Optional worldwide on-site training
- Optional Skype sessions
- 48-hour email support
- Best-practices
- Guidance on solutions to your specific problems

Customization

- Problem specific applicator
- Additional packages for ETT DirectControl software upon request
- Support for your specific stimulus presentation software possible

Need more channels?

- ETT DirectControl software has multi device support

