

# ETT Olfactometer

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*Version 2.0*

*Variable rate, fully programmable 6+1 channel Olfactometer with subject feedback and sub-second data resolution for fMRI and electrophysiological studies of the olfactory system*

We are proudly announcing ETT's latest development - the Olfactometer. It has been specifically designed for olfactory stimulation during fMRI and electrophysiological experiments. The device is computer controlled and comes with a fully featured paradigm designer to perfectly adjust the device behavior to the experimental design needs. All functions can be controlled via the 5 inch color touch-screen display.

Our Olfactometer comes with an easy-to-use user interface, which allows the operator to have full control over all stages of the experiment. Simple steps in our intuitive paradigm designer help you to easily stimulate at specific time points with the exact amounts you specified – consistently reliable.

Paradigms can be triggered manually as well as through any standard TTL pulse (5V,  $\geq 10$ ms) from an external source. During the paradigm the display gives animated feedback about every single stage of the stimulant application of the experiment. All information about each run, including all timings and self-diagnostics are stored onto the flash memory card in a text file as comma-separated-values, as well as screenshots.

The manual mode allows easy and fast testing each channel before the experiments

The exclusive PTFE material and Glassware used inside the magnet room to make the device fully MRI-compatible.

## Specifications

### In the box

- ETT Olfactometer
- Customized nosepiece/applicator
- 1 PTFE tubing set (8 m, 7 channel) between applicator and device (Incl. all necessary connectors)
- 6 channel odorant carrier with 6 odor containers and 1 humidifier
- Respiratory sensor belt with digital input
- Subject feedback pad with digital input
- Optical trigger to TTL trigger convertor (optional)
- Coax cable with connector (optional)

- Power cord

## Ports and Details

- Front-panel:
  - o Data I/O for SD-card or USB flash memory card
  - o Trigger in for paradigm start on external TTL pulse
  - o Trigger out to supply TTL pulse on each stimulation start
  - o C Bypass for external computer control
  - o Total air flow adjustment
  - o Air flow balance adjustment
- Back-Panel:
  - o Channel 1 to 6 stimulant outlet
  - o Flush channel outlet
  - o Air Intake for special source of air
  - o AC input
  - o Power adjust switch (110/220 V)

## Configuration

### Weights and Measurements

- 44 lbs / 20 kg (device only) ; 14"(L) x 8"(H) x 14.25"(D)

### Color Options

- Blue front-panel with beige body

### Features and Performance

- Easy-to-use paradigm designer for stimulation paradigm setup with 6 channel combination full flexibility in timing and volume delivered
- Multiple trigger start control mode including industry standard TTL pulse (like MRI RF trigger) or an external trigger source
- Real-time automatic data recording of respiration, paradigm and trigger events in both graphical and digital format
- Highly purified air system
- Variable air flow rate from 1-15L/min
- External premade air input make the unit not only can deliver the fresh air but also can deliver the special premade air for experiment needed (like CO<sub>2</sub>)
- C-bypass for advanced user to use external computer to control the stimulation sequence

### Memory and Storage

- Up to 16GB flash memory cards
- Save up to 9 paradigms in central control unit

## Power

- Input Voltage: 110V/220V
- Power requirements: 100W

## Sound and noise level

- Optional feedback sounds
- Pumps rates less than 60 dB at 1 meter

## Hardware

- Full function user-programmable central logical control unit with 5" touch-screen display
- Dual axial plunger air pump with 25 psi air pressure
- Micro-filter ventilation system with replaceable Charcoal and particle filter
- 7 solenoid valve system
- 6 chamber MRI compatible Odorant Carrier
- Customizable nosepiece/applicator
- 1 channel PTFE tubing set between Odorant Carrier and applicator
- Cooling fans

## Communications

- Trigger out with a TTL pulse (+5V,  $\geq 10$ ms)
- Trigger in with a TTL pulse (+5V,  $\geq 10$ ms)
- Subject response touch pad with digital input
- Subject Respiratory monitoring with digital input
- C-Bypass with diver and application

## Display

- 5" full color touch-screen display
- 800 x 600 resolution

## Software and support

### ETT software

- Genuine ETT Olfactometer OS version 2.01
- Customer download with C-bypass diver and application

### Service and warranty information

- 1 year limited warranty with mail-in professional engineer service and support
- 1 year full work hours coverage for technical assistance
- Online and email support available from ETT and the research community users at <http://www.emergingtechtrans.com>
- Live immediate-ship loaner equipment available for support during experiments