

OLFACT-fMRI™

The OLFACT-fMRI is a computerized, odor delivery device that has proven to be a reliable and valid instrument for fMRI studies of olfactory function.

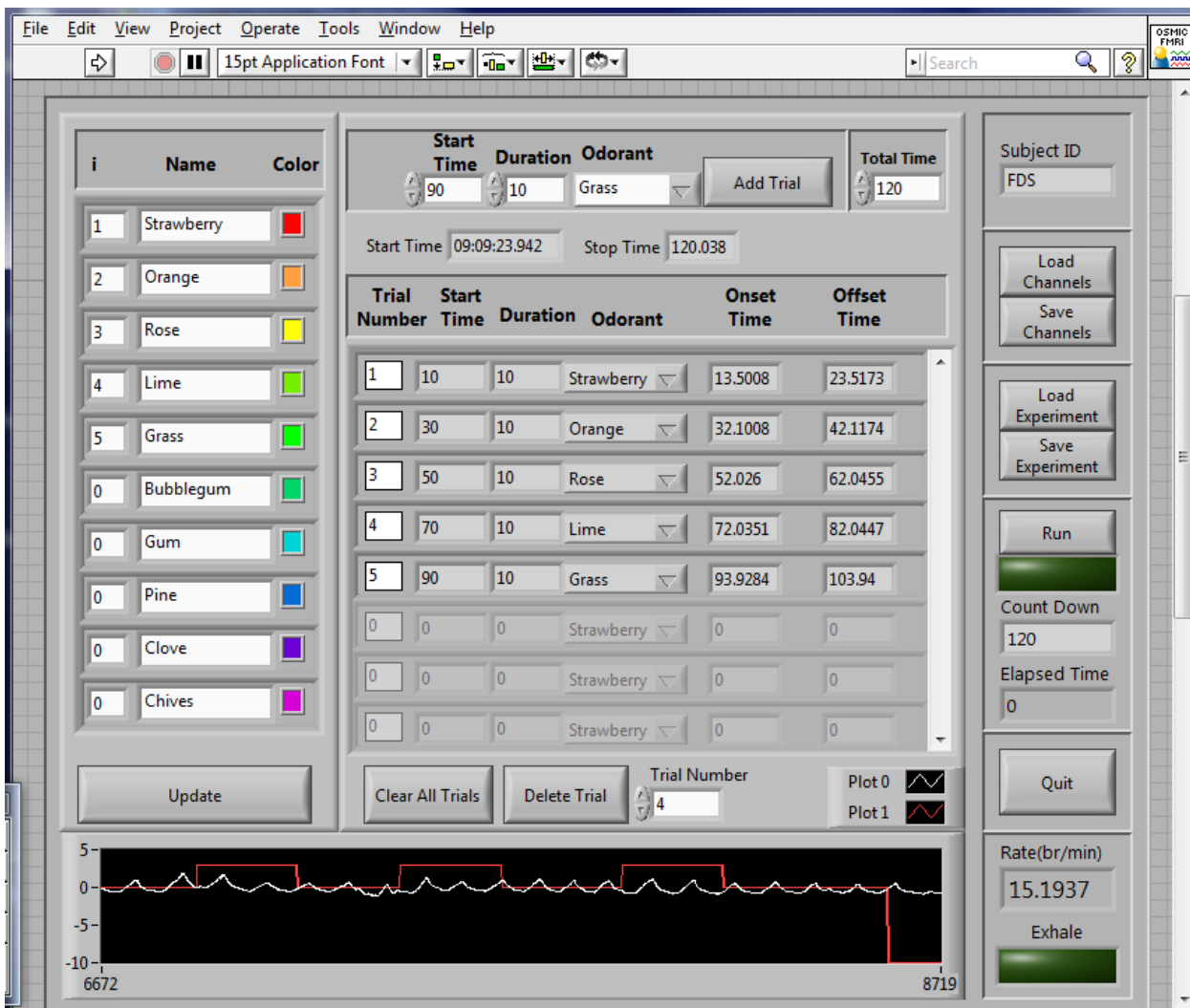


Basic research applications include mapping olfactory centers, pharmacological/neurodegenerative disease studies, cognitive/learning research as well as neuro-marketing studies.

Features and Functions: (See manual for more details)

- **Odorants** – up to 8 odorants; only one odor stimulus can be delivered at a time; six is standard. System can be charged and recharged by customer or OEI.
- **Air Flow** – maximum flow rate of up to 3 lpm of non-heated, non-humidified air. Adjustable stimulus flow rate of 0 - 1000 ccpm and carrier flow rate of 0 - 2,000 ccpm.
- **Remote Odor Generator** - all glass and plastic odor delivery unit for operation inside MRI magnet. Hose length up to 24 feet from base unit.
- **Automated stimulus generation** – the stimulus presentation can be triggered by the OLFACT software or respond to a trigger pulse from the fMRI.

- Software** – Olfactometer can be configured to work with E-Prime/Presentation software or Osmic’s proprietary operating software. If E-Prime is used, commands to turn on and turn off the odorant channels are written via the parallel port; duration, frequency and all other aspects of the odorant stimulus presentation are also controlled by E-Prime. The same is true for Presentation, but it can also control the olfactometer directly via LabView drivers. In the Osmic software (written in LabView) all operating characteristics are determined by a Master Protocol form (below) where odor channel, duration, frequency, etc., are entered by the experimenter. Presentation of the stimulus can be linked to the inspiratory phase of the respiration cycle via signals from a respiratory belt. Time-stamped data files are saved for both the stimulus presentation and respiration which allow precision alignment with fMRI data. Software is also provided to allow psychophysical measurement of odor stimuli used in a protocol, i.e. how intense does the subject perceive the odor stimuli being used, as well as other variables of interest.



- Computer regulation of odor stimuli** - accurately and consistently regulate the timing, duration and/or concentration of the odorant (odor concentrations have been validated using gas chromatographic analysis or photoionization detection)
- Applications** – any experimental protocol that involves stimulation of the olfactory centers of the brain. Can be used for olfactory mapping, neurodegenerative disease studies, cognitive/learning research and neuromarketing studies.

- **Laptop Computer & Software** – a laptop computer is included in the purchase price. The software provided for use with E-Prime is for a straightforward protocol to turn the odors on and off. The Osmic software allows for complete control of the stimuli. Software development is available for custom applications/protocols.
- **Additional Models** – The model described above is the base unit (6 odorants). Other devices which can present multiple odors/concentrations under computer control are also available. Models are available that will present from 2 - 8 odorants simultaneously. They can be configured with individually adjustable flowmeters, or electronically controlled mass flow controllers when applications require precisely controlled levels of odorants administered under complex protocols.

Support:

- Two days onsite installation and training
- All parts and materials guaranteed for 1 year
- Technical support via telephone
- Program modifications available:
 - Basic programming at \$80 per hour
 - Senior programmer for development of new protocols at \$120 per hour

Technical Specifications:

- Olfactometer: 16”d x 11 &1/2”w x 12 &1/2”h , 14 lbs
- Delivery hose: 24 ft X 1&1/4 in, 3 lbs
- Head piece (contains odorants, see below) ~ 9”d x 15”w x 7-1/2”h, ~2 lb
- Air supply pump and 24VDC external power supply
- Laptop

Note: There must be an open waveguide (minimum 2” diameter) available to allow passage of the delivery hose into the magnet room. Length of the connection hose is 24 feet.

Other products are available for odor identification, threshold determination and memory.