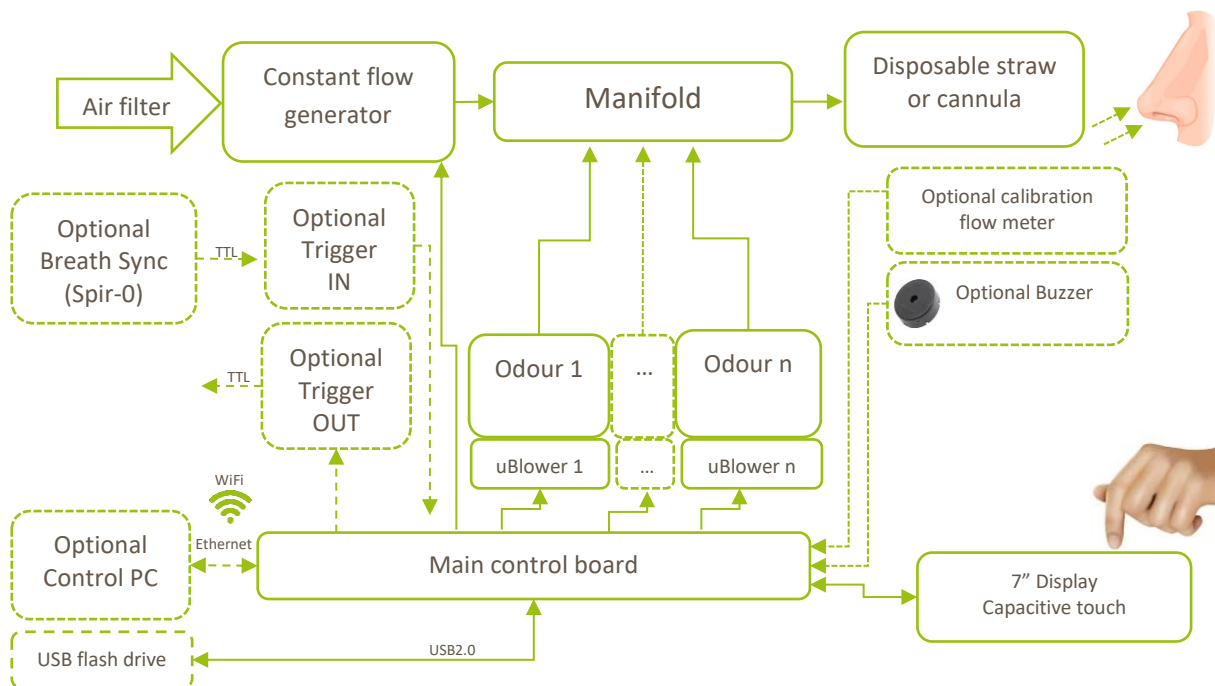


Sniff-nano



The growing need for newer and more affordable options for evaluating olfactory performance has led to the development of Sniff-nano. Building on the expertise gained with Sniff-0, a laboratory grade instrument for olfactory experiments, **Sniff-nano** is a compact olfactometer designed for medical olfactory purposes. This versatile unit can function as a standalone device, enabling the implementation of various olfactory experimental protocols, including those requiring interaction with test subjects via touch screen or audible outputs for an automated and well documented process. Numeric and PDF reports can be generated. **Sniff-nano** delivers precise, calibrated quantities of odours and maintains a constant flow through a straw or nasal cannula, effectively minimizing the spread of breath droplets in the environment, making the ideal device for research and clinical purposes.



System block diagram

The device's basic configuration consists of a constant flow generator that can be regulated to obtain a direct nostril flow ranging from 0.5 to 2 l/minute. This air flow feeds into an odour mixing chamber into which controlled odour channels can be injected with a flowrate ranging from 0.3 to 0.5 l/minute and a very precise control of timing: digitally controlled dispensing enables short odour pulses as well as ramping the odour up or down. With two independent flow-controlled channels a double sync odour delivery or mixing is possible, enhancing combined flow rate up to 1.0 l/minute.

Standard configurations of **Sniff-nano** start from 2 odour channels and can be expanded to 16 odours, with each channel having its own replaceable / refillable odour jar. The programmable control unit synchronizes the dispensing of odours, the use of the constant flow, the sound buzzer, and the capacitive display outputs. All operations can be customized to meet specific experimental or diagnostic protocol needs, and all device activities and data can be logged by the unit using a progressive trial number.

An optional flow meter unit can be attached to the output to check flowrate stability across the product's lifespan, run an autocalibration routine, or define new constant flow/odour combinations for new protocols. Once programmed using Python code, any protocol can run in a standalone mode so as to ensure maximum use flexibility. An Ethernet or WiFi peer-to-peer connection allows **Sniff-nano** to be controlled and monitored through a dedicated network connection, and the integrated **USB 2.0** host port can be used to upgrade the SW or save data to a USB Flash Drive.

Main features



Safe: low pressure dispensing avoids odour and breath droplets spreading in the environment. Use of disposable straws or cannulas avoid any direct contact between user and device.



Fast and cheap: each odour refill can last for a large number of trials, depending on odour, dilutant used, flow rate and dispensing duration. Once exhausted, just unscrew and refill or replace the odour jar with a new one.



Digital device: automated protocols with session logging are possible, allowing the use of multiple or remote stations. Automated tests can be collected as anonymous statistics for each station. Each device contains a fully programmable GNU/Linux embedded controller as Pygame application.



No external compressed air source needed: the system self-generates the basic airflow needed for running the experiments.



Very precise time-controlled odour dispensing which can be synchronized with subject feedback through the interactive touch display and sound buzzer output.



WiFi peer-to-peer connection to collect statistics, monitor the application and perform system upgrades. An internal **ethernet** port is available for wired point-to-point connections.



USB host interface to connect USB flash drives for saving of logs or for software upgrades.



Small, portable and robust, packaged in a conveniently appealing and standalone format.

| SPECIFICATIONS Sniff-nano | |
|---------------------------|---|
| OS support | GNU/Linux embedded |
| Software compatibility | Python, Pygame |
| Communication | WiFi or internal ethernet |
| Constant flow range | From 0.5 to 2 l/min |
| Odour flow range | From 0.3 to 0.6 l/min (0.6 to 1.2 l/min when using paired channels) |
| Screen | 7" 800x480 capacitive touch |
| Power | 12V 30W max (EN60601-1 compliant medical grade power supply included) |
| Dimensions (Max) | 450 x 280 x 240mm |
| Weight | 4.5-6.0 kg (depending on configurations) |

| RELATED PRODUCTS | |
|-------------------------|---------|
| Olfactometer | Sniff-0 |
| Breathing cycle monitor | Spir-0 |

| OPTIONS / ADD-ONS |
|--|
| <ul style="list-style-type: none"> • Development of custom experimental protocols • Development of custom graphical interfaces • RS232 port • Pluggable flow sensor, range 0-10 l/m accuracy 2%, 14 bit resolution |