

Air Puff User Guide

Device Overview

- One 3-way solenoid directs room air in two modes (On/Off) towards a target using pneumatic tubing
- Output air pressure is not controlled by the device, but by the external input level (pressure from the wall air valve)
- Speed of puff stimulation (On/Off) can be modulated with this device using arduino serial monitor commands

Device Usage

- Turn stimulation on/off using serial monitor commands or by using blue switch (either works, serial commands recommended)
- Control stimulation and speed/frequency of stimulation using serial monitor commands
- Default frequency is 5Hz

Serial Monitor commands:

“S” - Start pulsing

“X” - Stop pump

“1” - Set to 1 Hz (500ms ON/OFF)

“2” = Set to 2 Hz (250ms ON/OFF)

“5” - Set to 5 Hz (100ms ON/OFF)

“R” - Random Mode (cycles through 1/2/5 Hz)

“I” - Show status

“M” - Show menu

Power and air connection

Power:

- If using wall outlet only, use a DC power adapter to split power between the mcu and the DC solenoids
- Can alternatively power the microcontroller with laptop/computer-USB connection and power the DC solenoids using a bench power supply or wall outlet

Air Connection:

- Default is using room air from the orange wall valves
- Currently placing pneumatic tube over the opening of the air valve and securing with tape

Hardware maximums and limitations

Power supply recommendation:

- 6V DC Regulated Wall Adapter (1A or higher)
- 7-12V Adapter

Issues and Future Improvements

If you have any feedback, I would really appreciate suggestions!

1. Minimizing air leakage
 - a. Currently using tape to attach pipette output nozzle to pneumatic tubing
 - b. Permanent option: heat shrink to replace tape
 - c. Considering attaching a sanded-down large needle tip?
2. Adding a second air input/output system
3. Need to solder wires to components