

How to use the Optic TapPad in Psychopy experiments



The Optic TapPad enables fine fast and quiet tapping with one finger (as opposed to the keyboard or the response box). It operates with a LED light on one side and a photo-diode on the other, and each time the participant “taps” the light-beam is broken and the photo-diode does not sense the light.

Connections: It needs a connection to the electricity network and it connects to the computer via a parallel connected. An additional BNC cable is not currently in use, but can be connected to the EEG as an additional external channel.

The data from the photodiode is outputted to a single pin (pin 13) of the parallel port, which switches from 1 to 0 every time the light does not reach the photodiode.

Use with Psychopy: Since it is not one of the default responses in Psychopy, it is not possible to use the "drag and drop" Psychopy's GUI. Instead, there is a need to add the code for its usage manually.

The current code (below) works as follows: The status of pin 13 starts as 1. Every frame its value is compared with the previous value. If there was a change to 0 (i.e there was a tap) – we append the timing of this change to a variable called "tap_times". Note that we only log changes from 1 to 0 (and ignore changes from 0 to 1 which represent moving the finger back up).

In the desired location, add the "readTap" properties. In the GUI, choose "Custom"-> "Code: insert Python commands into an experiment".

In the Code properties add the following in the following tabs:

Begin Experiment

```
from psychopy import core, parallel, visual
port = parallel.setPortAddress(0xB050) #address for parallel port on the PC used, see below
on how to find it..
```

Begin Routine

```
tap_status = 1
tap_times = []
```

Each Frame

```
new_tap_status = parallel.readPin(13)
if new_tap_status!=tap_status:
    tap_status = new_tap_status
    if tap_status == 0:
        tap_times.append(t)
```

End Routine

```
tapping_loop.addData('tap_times',tap_times)
```

How to find the parallel port address in the computer?

To find your parallel port, open the Start menu, and in the search box type "msconfig" (no quotes) and press enter. The msconfig menu box will open. Choose the tab called "Tools" and select "System Information", click "Launch"

Another window will open. On the left hand navigation pane, click on "Hardware Resources", then on "IO". The screen will say that it's refreshing information and then the right hand pane will display all of the IO devices in your PC, with the addresses on the left hand side of the pane. Scroll down until you find the parallel port adapter, and you'll have your address.

The parallel ports on the lab computers are:

Venus:

0xB050

0xB040

Jupiter:

Formatted: Indent: Before: 1.27 cm

Supposed to be two but **:[Comment [n1]**
in the list appears also
B020-B03F and B000-BFFF and also E020-
E03F but their sizes are larger but it also
have E040-E047 and E050-E057

Supposed to be one. **:[Comment [n2]**
But in the device manager there is a whole
list: B020-B03f, B040-B047, B050-B057,
E020-E03F, E040-E047, E050-E057